

FLIGHT

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the interests, practice, and progress of Aerial Locomotion and Transport.

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 361. (No. 48, Vol. VII.)

NOVEMBER 26, 1915.

[Registered at the G.P.O. as a Newspaper.] [Weekly, Price 3d. Post Free, 3½d.]

Flight.

Editorial Office: 44, ST. MARTIN'S LANE, LONDON, W.C.

Telegrams: Truditur, Westrand, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free.

United Kingdom ... 15s. 6d. Abroad ... 20s. 6d.

CONTENTS.

Editorial Comment :	PAGE
An Anniversary ...	909
National Insurance. An Asset or a Liability? ...	910
Aircraft Work at the Front. Official Information ...	912
The British Air Services ...	913
The Roll of Honour ...	913
Honours ...	914
The Captured Albatros Reconnaissance Biplane. (With Scale Drawings) ...	916
A Fight in the Air ...	920
Flying at Hendon ...	921
From the British Flying Grounds ...	922
A Look Round Brooklands ...	924
Armchair Reflections. By the "Dreamer" ...	925
Eddies. By "Æolus" ...	926
The "Arrival" of the Aeroplane. By Algernon E. Berriman ...	928
Aircraft and the War ...	930
Lighter Than Air ...	931
Models ...	932

EDITORIAL COMMENT.

An Anniversary.

On the 21st of November, 1914, a very fine achievement was scored by members of the Royal Naval Air Service, in their attack upon Friedrichshaven, when the officers who took part in this now historical raid, gave the Germans a fore-taste of what it was possible to accomplish from the air against their strongholds, however remote from the actual fighting lines. Not inappropriately the Navy League has taken the anniversary of this feat as an opportune moment to remind the British peoples of the League's activities in help of the Flying Services and of the splendid work which has been accomplished since then by the Royal Naval Air Service. We welcome this display of public interest in the Air Services and shall hope to see this effort but the forerunner of further propaganda likely to bring home to the man in the street the direct importance of the British Flying Services both in the present conflict and in the years to come after the world has been able to settle down once again into a more normal state of existence. By dint of systematic publicity in this direction it will become ingrained in the minds of the great B.P. that whatever else is neglected, the Navy

and the Air Services must have the most generous and unstinted support for all time from now onwards. There need then be no half-hearted grants by the Government for maintaining the aviation side of our forces in a highly organised state of efficiency, as the will of the people would be prepared for sacrifice, if it be necessary, in other directions, rather than there should be a suspicion of slackening in rendering the now accepted Fifth Arm relatively as great a standing force in its own element as our Fleet is on the seas of the world. We should have been better pleased with the Navy League's appeal for applause for the R.N.A.S. had they included a direct suggestion for material appreciation of the services of this Arm, by inviting further subscriptions to the Flying Services Fund, which, under official recognition, is in the hands of the Royal Aero Club for administration. Although this fund has passed the £10,000 mark, such a sum is but a drop in the ocean to what such a fund should reach, having regard to the splendid character of its objects and the magnificent work which has been accomplished by the Air Services. Taking even the Navy League's own tabloid summary of the activity of the R.N.A.S., no further inducement should be necessary to bring in really substantial additions to the fund, which as opportunity arises is helping to smooth the lives of the men and their dependants who have unhesitatingly done so much for their country's welfare. The objects are set forth in the official notes of the Royal Aero Club each week, so there can be little excuse for the holding back of contributions by those who can and should appreciate the work of those the fund is intended to benefit. In many directions there has been nothing forthcoming, where there is substantial reason for generous consideration, and we hope that the reminder of the Navy League may set those thinking who have not already sent in their quota. It is of interest, and may serve a good purpose, if we reproduce the summary of some of the claims for consideration as set out in the Navy League's circular. These are placed under the following heads, but it should be had in mind that there is also a vast amount of important work of which, for obvious reasons, it is impossible to divulge particulars:—

"1°. Since the war began seaplanes have maintained continuous patrol of the Grand Fleet, and both seaplanes and aeroplanes have secured most valuable results by 'spotting' objectives for ships' guns.

"2°. Seaplanes, from seaplane carriers, enabled H.M.'s ships to smash up the German cruiser 'Koenigsberg,'

and a similar 'spotting' had been carried out in the Dardanelles.

"3°. Kite Balloons of the Royal Naval Air Service, operating from ships, have also contributed to render naval gunnery effective in Gallipoli.

"4°. The Cuxhaven raid was successfully carried out by seaplanes from a British flotilla.

"5°. Projectiles dropped from seaplanes have sunk several Turkish ships in the Sea of Marmora.

"6°. In anti-Zeppelin operations coastal patrols have given warnings of approaching raiders, and on various occasions have succeeded in driving off the invaders.

"7°. The Royal Naval Air Service detachment at Dunkirk :—

"a. Destroyed at least six German airship sheds, two of these having airships inside ;

"b. Damaged one Zeppelin and destroyed another in the air ;

"c. Destroyed another Zeppelin on the water which had previously been damaged by anti-aircraft guns ;

"d. Damaged submarines in the Cockerill Yard, at Antwerp, and

"e. Continuously worried submarines in Zeebrugge and Ghent harbours.

"A submarine was also sunk by Naval Aircraft off Ostend.

"8°. The Royal Naval Air Service Kite Balloon Sections in Flanders have been co-operating with artillery with excellent results.

"9°. Various naval airships and other aircraft have been doing most useful work, *which cannot be detailed*.

"10°. It must be remembered that the only blow which has been struck up to the present by British forces on German territory in Europe has been struck by the Royal Naval Air Service at Dusseldorf, Cologne, Friedrichshaven, and Cuxhaven."

Whilst fully realising that the Navy League is concerned only with the Naval side of air-work, we should have preferred to have seen No. 10 paragraph omitted from the claims. The air-work of the R.N.A.S. has been so splendid that the League could well have dispensed with this clause, having regard to the no less magnificent and strenuous work which has been so unflinchingly carried out by individual members of the Royal Flying Corps and by the work generally of the Corps as a complete unit. Beyond the short official *communiqués* according praise in general terms to the R.F.C. little has been allowed to transpire of the main achievements of the R.F.C., and the possible pains and penalties at the hands of the Censor's department are sufficiently onerous to stop the publication of most of the facts as they come into our possession. Hence the meagreness of the records of the Army flying men, although, through despatches and in the case of individual awards, the curtain has now and again in a very small way been lifted. It looks as if we should have to wait, as in the case of the Army generally, for some time before full credit can be placed where it is due. When that time comes, although late in the day, it will not be too late, we hope, for a real big attempt to be made to push the Flying Services Fund into top speed for the six-figure mark.

National Insurance. An Asset or a Liability? Although the National Insurance scheme is in full operation and has proved an immense success, it is evident that there still remains a considerable section of the public which considers that damage from aircraft and bombardment should be a National liability

and not a National asset, upon the lines as originally put forward by "FLIGHT" in October, 1914, a couple of months after war had broken out. In this connection we learn that the Committee on War Damage is presenting a memorial to the Prime Minister, in which they urge that the immense losses suffered in many districts should be borne by the nation. It is claimed that notwithstanding that the withdrawal of the Government insurance scheme would involve a considerable expense in the first instance, it is highly desirable that all premiums received should be repaid, and, as trustees for the nation, the Government should proclaim their intention of giving fair compensation to the owners of property and goods that had already been, or might in future be, damaged or destroyed either by aircraft or bombardment. The municipal corporations of Abingdon, Barrow-in-Furness, Bromley (Kent), Chatham, Hertford, Gateshead, Ilkeston, Kidderminster, King's Lynn, New Romney, Shrewsbury and Wednesbury, also the Urban District Councils of Ashford (Kent), Clacton-on-Sea, Ilford, Heston and Isleworth (Middlesex), and Seaham Harbour have agreed to join in the presentation of the memorial.

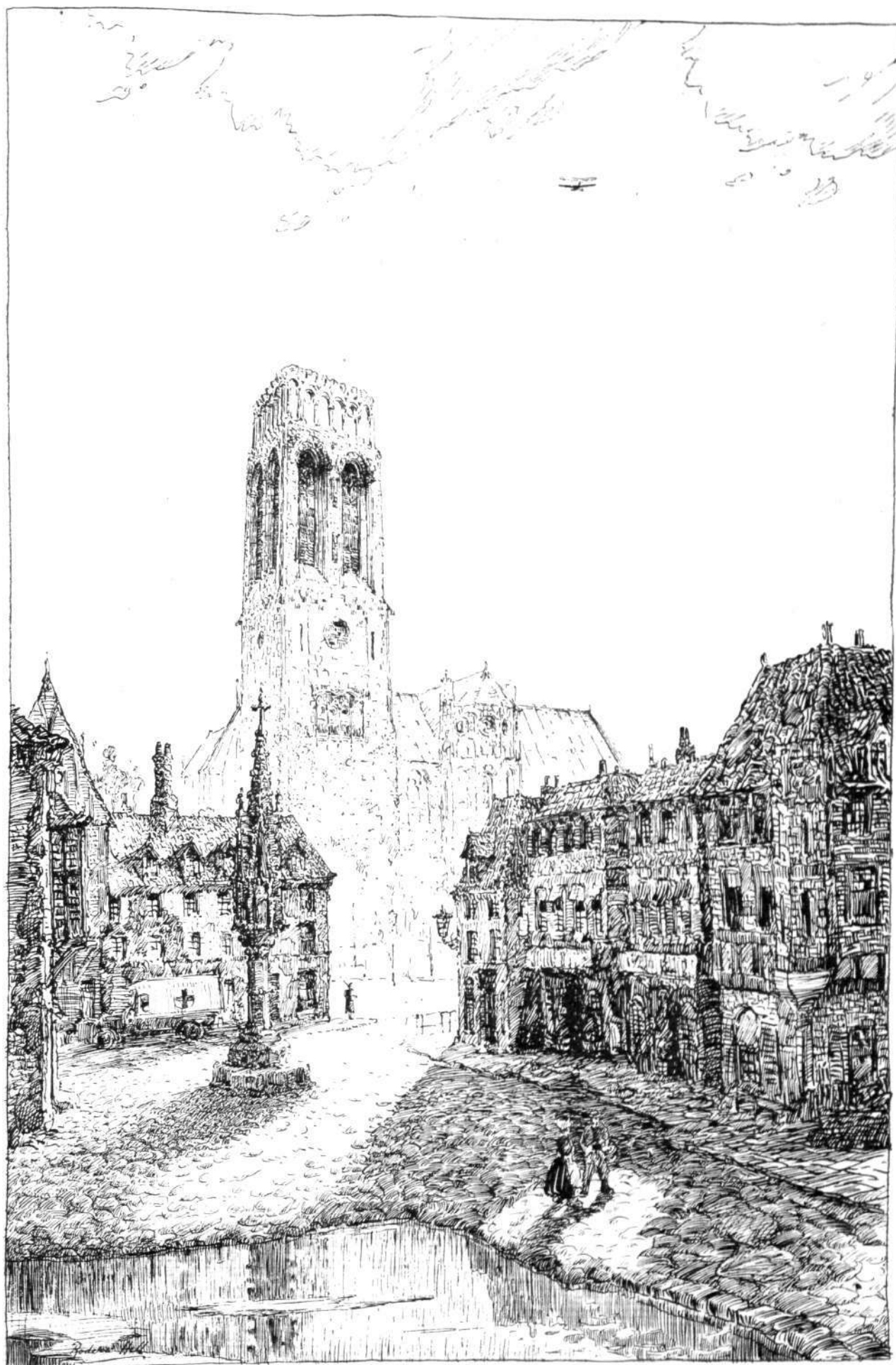
Well, we wish them luck in their efforts to bring about the end which they seek, but we have little faith in a successful issue at this time of day. There are too many out looking after National economy just now, for a patient ear to be given to the turning of such a source of revenue into an outflowing stream for Government money. The efforts, as we have said time and again, should have been launched a year ago instead of now. Our sympathies are, nevertheless, very much with the aggrieved, and for that reason we reprint the following further "argument" in their behalf, which has been sent out to the press by Messrs. Mark H. Judge and Son, of 7, Pall Mall. This firm argue thusly :—

"The Government insurance scheme which has made the individual citizen responsible for war damage is so manifestly unjust that we may reasonably hope that it will soon be abandoned. The Army and Navy are maintained for the defence of the citizens and their property. In so far as they fail to give complete protection, the community, as a whole, should compensate those who suffer damage, whether they be freeholders, leaseholders, householders or lodgers. Prior to the Government insurance scheme sufferers from air raids and bombardments on the East Coast were properly compensated out of national funds, on the same principle that residents of a police district are compensated for damages resulting from failure of the authorities to give complete protection in the case of riots. The Riot (Damages) Act, 1886 (49 and 50 Vic. c. 38), provides in section 2 as follows :—

"Where a house, shop or building in any police district has been injured or destroyed, or the property therein has been injured, stolen or destroyed by any persons riotously and tumultuously assembled together, such compensation as hereinafter mentioned shall be paid out of the police rate of such district to any person who has sustained loss by such injury, stealing or destruction : but in fixing the amount of such compensation regard shall be had to the conduct of the said person, whether as respects the precautions taken by him or as respects his being a party or accessory to such riotous or tumultuous assembly, or as regards any provocation offered to the persons assembled or otherwise."

"This question of war damage seriously affects the whole community, and if not dealt with in an equitable manner will add to the necessary evils of the war, untold suffering on the part of those citizens who happen to be hit by the enemy in their attack on the nation. Once recognise that war damage is a national responsibility, and it becomes clear that all insurance schemes are out of place, and that an Act should be passed for compensating all citizens injured in the person or estate by the enemy."

The argument is distinctly sound, and as in good time the disturbers of the world's peace will be called upon to settle our Zeppelin victims' bill, the ultimate loss to the nation by any compensation paid should be represented by a minus quantity.



SOMEWHERE IN FRANCE.

Behind the firing line in France, with a B.E. 2c passing over. From an original drawing by Roderic Hill, who has been invalided home from the trenches, after having been wounded on Hill 70.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

General Headquarters, Nov. 18th.

"RECENTLY, when carrying out a patrol, one of our airmen engaged a German aeroplane at close quarters, and forced it to land heavily in a ploughed field behind the German lines.

"Our airman, diving within 500 ft. of the ground, opened a heavy fire on the pilot and observer, who had left the aeroplane, and were making off across country. He also dropped an incendiary bomb on the German aeroplane, which, when last seen, was enveloped in smoke.

"Our machine was damaged by the enemy's fire, and forced to land 500 yards behind our trenches, where it was heavily shelled by the enemy, but was not again struck. The pilot replaced his tank during the night and succeeded in bringing his machine safely home at dawn."

General Headquarters, Nov. 22nd.

"A German aeroplane landed in our lines south-west of Ypres on the 19th. The pilot and observer, who stated they had lost their way, were captured. The machine was undamaged.

"The enemy made air raids on Poperinghe on the 18th and 20th. No damage whatever was done to the railway or to any buildings. In the first raid two soldiers were wounded and four cows killed. In the second raid one bomb caused casualties to eight men, none of the others had any effect."

*General Headquarters,
Mediterranean Expeditionary Force.*

"Two British aeroplanes successfully attacked the railway station at Ferejik, near Enos on November 18th. One machine was unfortunately brought down by the enemy's fire, but the pilot managed to land safely in the marshes on the opposite side of the river (Maritza), where he burnt his machine.

"Meanwhile the pilot of the second aeroplane, who was alone, seeing his friend's mishap, landed beside him and succeeded in bringing him away just in time to escape capture by the enemy, who were running towards him."

French.

Paris, Nov. 19th. Afternoon.

"Eight enemy aircraft yesterday attempted to fly over Lunéville. They were attacked, and five of them turned back. The other three dropped some bombs on the town, and three persons were wounded. The material damage done was of little importance."

Paris, Nov. 23rd. Afternoon.

"During the 22nd inst., our aeroplanes at various points of the front were engaged in encounters with the enemy, resulting to our advantage.

"In Belgium two German machines were compelled by our men to come down.

"In the region of Rheims two Aviatiks were pursued and turned tail.

"In Champagne and on the borders of the Argonne five aerial duels took place, as the result of which three Aviatiks had to come down precipitately in their lines, another aeroplane fell disabled, and the fifth came to earth in flames."

Russian.

Petrograd, Nov. 17th.

"A Zeppelin which flew over the Dvinsk district on

the night of the 15th dropped bombs, some of which fell in the German trenches, causing heavy losses and a panic among the Germans."

Belgian.

Havre, Nov. 19th.

"In the course of the two preceding nights our aviators bombarded the German cantonments at Essen."

Havre, Nov. 20th.

"After a quiet night the day was marked by activity of the enemy batteries and aeroplanes."

Havre, Nov. 21st.

"In response to the bombardment of Furnes our aviators have bombarded the enemy's cantonments at Essen."

Italian.

Rome, Nov. 17th.

"Enemy aeroplanes yesterday dropped bombs on Ala, but no damage was done, and there were no victims."

Rome, Nov. 18th.

"Our aviators and observation posts detected enemy batteries posted in the ring of heights which dominate Gorizia from the east."

Rome, Nov. 21st.

"One of our flying squadrons, under the most adverse atmospheric conditions imaginable, and in the teeth of a tempestuous wind, renewed the incursion on the enemy's aviation camp at Alcevizza, on which over 100 bombs were again dropped. Our machines returned unharmed to our lines."

German.

Berlin, Nov. 19th.

"A German air squadron attacked the British Army encampment west of Poperinghe."

Berlin, Nov. 21st.

"Our aeroplanes dropped a great number of bombs on the railways at Poperinghe and Furnes, and hits were observed."

Berlin, Nov. 23rd.

"A French biplane fell after a fight in the air near Aure (Champagne)."

Austrian.

Vienna, Nov. 18th.

"The Navy Command officially announces this afternoon that one of our seaplane squadrons successfully dropped bombs on forts San Nicolo and Alberoni, the arsenal, the aviation station, the gasometer, the railway station, and several barracks at Venice. Despite a heavy fire from anti-aircraft guns and attacks by three hostile aeroplanes, our squadron returned completely undamaged."

Vienna, Nov. 19th.

"Our airmen dropped bombs at Verona, Vicenza, Trecedino, Udine and Perdigiano."

Vienna, Nov. 23rd.

"Two of our aviators dropped bombs on Arsiero."

Turkish.

Constantinople, Nov. 20th.

"On the Irak front we shot down and captured a second enemy aeroplane."

THE BRITISH AIR SERVICES.

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

THE following appeared among the Admiralty announcements of the 17th inst. :—

Flight Sub-Lieut. R. M. Clifford to the "Empress," vice Dunn, Calshot Seaplane Station. To date Nov. 16th.

The following appeared among the Admiralty announcements of the 18th inst. :—

Temporary Probationary Flight Sub-Lieut. R. Spickernell granted a temporary commission as Sub-Lieutenant (R.N.V.R.), with seniority of Nov. 17th, and appointed to "President," additional, for R.N.A.S.

Late Probationary Flight Sub-Lieut. L. Gresley reinstated in R.N.A.S. as Probationary Flight Sub-Lieutenant, with seniority of Nov. 14th, and appointed to "President," additional, for R.N.A.S. Lieut. (R.N.V.R.) G. Holmes promoted to rank of Lieutenant-Commander, with seniority of Nov. 16th.

Temporary Sub-Lieut. (R.N.V.R.) A. C. Wade promoted to Temporary Lieutenant, with seniority of Nov. 16th.

Assistant Paymaster (R.N.) D. R. Thurstan granted a temporary commission as Lieutenant (R.N.V.R.), with seniority of Nov. 16th, and appointed to "President," additional, for duty with R.N.A.S.

G. G. Domville granted a temporary commission as Sub-Lieutenant (R.N.V.R.), with seniority of Nov. 17th; and A. F. Wilson entered as Probationary Flight Sub-Lieutenant, for temporary service, with seniority of Nov. 22nd, and both appointed to "President," additional, for R.N.A.S.

The following appeared among the Admiralty announcements of the 19th inst. :—

Sub-Lieut. (R.N.V.R.) H. C. Woodward promoted to Lieutenant, with seniority of Nov. 17th.

The undermentioned have been entered as Probationary Flight Sub-Lieutenants, for temporary service, and appointed to "President," additional, for R.N.A.S., with seniority as follows: E. J. Cuckney, Nov. 17th; J. S. N. Rockey, E. R. Pritchard, D. Aitken, S. J. Wooley, G. L. Hartgill, I. N. Carmichael, D. E. Harkness, P. A. F. Belton, J. H. Woolner, and S. E. Ball.

Temporary commissions (R.N.V.R.) have been granted as follows: V. Hewitt as Lieutenant, and appointed to "President," additional, for Inspectional Duties; N. M. Clougher as Lieutenant, and P. R. S. Walford as Sub-Lieutenant, both appointed to "President," additional, for R.N.A.S., and all with seniority of Nov. 18th.

The following appeared among the Admiralty announcements of the 22nd inst. :—

Temporary Lieut. C. Kirby, R.N.V.R., to the "President," additional, for R.N.A.S. To date Nov. 8th.

Acting Paymaster S. Finniss to "Ark Royal" as Acting Paymaster. To date Nov. 20th.

The Roll of Honour.

THE following casualties in the Expeditionary Force have been officially reported from General Headquarters :—

Under date November 11th :

Wounded.

2nd Class Air-Mechanic S. Hall, Royal Flying Corps.

Under date November 12th :

Missing.

Second Lieutenant V. M. Grantham, Royal Flying Corps.

Lieutenant W. A. Harvey, Norfolk Regt., 4th Batt. (T.F.), attached R.F.C.

Second Lieutenant J. E. P. Howey, Bedford Yeomanry, attached R.F.C.

Second Lieutenant C. H. Kilway-Bamber, General List and R.F.C.

Under date November 15th :

Wounded.

Lieutenant G. S. M. Ashby, R.G.A. and R.F.C.

Second Lieutenant R. Corbett, W. Somerset Yeomanry, attached R.F.C.

Lieutenant O. D. Filley, Royal Flying Corps.

Royal Flying Corps (Military Wing).

THE following appeared in a supplement to the *London Gazette* issued on the 17th inst. :—

Flight-Commander.—Capt. J. Valentine, Special Reserve, from an Equipment Officer. Oct. 15th, 1915. (Substituted for the notification which appeared in the *Gazette* of Nov. 15th, 1915.)

Balloon Officers.—Capt. John F. Cowland, 20th Hussars, and to be seconded; Sept. 12th, 1915. Temporary Lieut. H. Whitaker, R.E.; Sept. 27th, 1915. Oct. 4th, 1915: Temporary Second Lieut. R. L. Farley, 9th Reserve Regt. of Cavalry, and to be transferred to the General List. Temporary Second Lieut. S. A. Meller, the Royal Fusiliers (City of London Regt.), and to be transferred to the General List. Second Lieut. (on probation) T. F. Lucas, Royal Warwickshire Regt., Special Reserve, and to be seconded; Oct. 5th, 1915.

The following appeared in the *London Gazette* of the 19th inst. :—

Wing-Commander.—Capt. (Temporary Lieut.-Col.) Duncan Le G. Pitcher, 39th King George's Own Central India Horse, Indian Army, from Assistant Commandant, Central Flying School, and to retain his temporary rank whilst so employed. Nov. 15th, 1915.

Supplementary to Regular Corps.—Reginald Walter Le Gallais from Second Lieutenant Royal Militia of Island of Jersey, to be Second Lieutenant (on probation). Nov. 6th, 1915.

The following appeared in the *London Gazette* of the 23rd inst. :—

Supplementary to Regular Corps.—To be Second Lieutenants (on probation): William B. Young; Oct. 1st, 1915. Henry J. C. Smith; Oct. 9th, 1915. Oct. 13th, 1915: Arthur W. Kilgour, Arthur Goulding, John J. Lynch. Oct. 18th, 1915: Stanley B. Lee, Verschoyle P. Cronyn. Henry L. Conner; Oct. 21st, 1915. James G. Bulger; Nov. 1st, 1915.

The following appeared in a supplement to the *London Gazette* issued on the 22nd inst. :—

Flying Officers.—Nov. 9th, 1915: Second Lieut. M. D. Basden, London Regt. (T.F.); Second Lieut. W. M. Pethybridge, Special Reserve.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: Ernest W. Barrett, Edward A. Kelly, and William M. Pethybridge.

To be Second Lieutenants (on probation); Oct. 27th, 1915: Frank A. Garlick, William S. R. Bloomfield, and Edric Henty. Richard L. Burdon-Sanderson; Oct. 29th, 1915. Ernest H. Robinson; Nov. 22nd, 1915.

Memoranda.—Officer to be transferred to the General List: 1st Class Air-Mechanic C. H. Chapman from Royal Flying Corps. Sept. 30th, 1915.

Central Flying School.

THE following appeared in a supplement to the *London Gazette* issued on the 20th inst. :—

Assistant Commandant (graded as a Wing-Commander).—Capt. (Temporary Major) Cuthbert G. Hoare, 39th King George's Own Central India Horse, Indian Army, from Squadron-Commander, Military Wing, and to be Temporary Lieutenant-Colonel whilst so employed, vice Capt. (Temporary Lieut.-Col.) D. Le G. Pitcher, 39th King George's Own Central India Horse, Indian Army. Nov. 15th, 1915.

Under date November 18th :

Wounded.

Captain M. K. Cooper-King, Royal Flying Corps.

Undated :

Previously reported Missing, now reported Died of Wounds.

Second Lieutenant J. Gay, Royal Flying Corps.

Previously Officially reported Missing, now Unofficially reported Died of Wounds.

Second Lieutenant J. N. Washington, Manchester Regt. and R.F.C.

Previously reported Missing, now reported Prisoners of War.

Second Lieutenant B. Wilkin, Duke of Cornwall's L.I., attached R.F.C.

Flight-Sergeant H. Goodchild.

The following casualty in the Indian Forces has been reported from the Persian Gulf :—

Officially reported Missing, and Unofficially reported Prisoner of War.

Captain F. C. C. Yeats-Brown, 17th Cavalry, attached R.F.C.

HONOURS.

Further Rewards for Flying Officers.

In a supplement to the *London Gazette* issued on the 18th inst. it was announced that His Majesty the King has been graciously pleased to confer the Military Cross on the undermentioned Officers in recognition of their gallantry and devotion to duty in the field :—

Captain ROBERT LORAINÉ, Royal Flying Corps,
Special Reserve.

For conspicuous gallantry and skill on October 26th, 1915, when he attacked a German Albatros biplane, getting within 15 yards of it. When the hostile machine dived he dived after it, and followed it from a height of 9,000 ft. to 600 ft. The enemy pilot was hit, and his camera and wireless transmitter were subsequently found to have bullet-holes through them. The Albatros fell in our lines.

Temporary Lieutenant the Hon. ERIC FOX PITT LUBBOCK,
A.S.C., attached R.F.C.

For conspicuous gallantry and skill on October 26th, 1915, when he attacked a German Albatros machine at a height of 9,000 ft. with machine-gun fire. The hostile pilot was shot and the aeroplane was brought to the ground within our lines. The attack finished at a height of only 600 ft., and during an almost vertical dive, when the pilot was fully occupied, Lieutenant Lubbock fired deliberately and with effect.

An Admiralty announcement of November 19th stated that His Majesty the King has been graciously pleased to give orders for the appointment of the following Officer to be a Companion of the Distinguished Service Order :—

Flight-Lieutenant GEORGE BENTLEY DACRE, R.N.

For his services in the Dardanelles when he flew over the Gallipoli Peninsula, and in spite of serious trouble with his machine succeeded in carrying out a difficult operation, and afterwards returned safely to his base. Great nerve and courage were displayed in prosecuting an attack under very adverse conditions.

✱ ✱ ✱ ✱

German Seaplane in Holland.

THE *Daily Telegraph* correspondent at Rotterdam reported on Monday that on the previous afternoon a German seaplane was observed flying over Dutch territorial waters in the neighbourhood of the island of Schiermonnikoog.

It was fired upon by Dutch coastguards, and ultimately landed on the island. The machine had not been hit.

Zeppelins over Norway.

MESSAGES from Copenhagen on November 22nd stated that a Zeppelin had been seen near the Lyngør Lighthouse in Norway, north of the Skager Rock.

Foreign Decorations for Flying Officers.

IT was officially announced on the 23rd inst. that His Majesty the King had granted authority for the wearing of the following decorations :—

Cross of Commander of the Legion of Honour (conferred by the President of the French Republic).—Major-General Sir David Henderson, K.C.B., D.S.O., Commanding the Royal Flying Corps, and Commodore M. F. Sueter, C.B., R.N., Superintendent of aircraft Construction.

Cross of Chevalier of the Legion of Honour (conferred by the President of the French Republic).—Captain James Valentine, Royal Flying Corps, S.R.

Officer of the Order of the Crown of Belgium (conferred by the King of the Belgians).—Wing Commander A. M. Longmore, R.N.A.S., Acting Commander R.N.

D. C. M. for Flight-Sergeant Hargreaves.

IN the special supplement to the *London Gazette* issued on Tuesday evening, 16th inst., giving a long list of awards of the Distinguished Conduct Medal, the following appeared :—

Flight-Sergeant J. HARGREAVES, No. 11 Squadron, Royal Flying Corps.

For conspicuous gallantry and skill on several occasions, notably the following : On Sept. 21st, 1915, when in a machine armed with one machine-gun and piloted by Captain Rees, a large German Biplane, armed with two machine-guns, was sighted 2,000 ft. below. Our machine spiralled down and engaged the enemy, who, being faster, manœuvred to get broadside on and then opened fire. The attack, however, was pressed, and the engine of the enemy's biplane was apparently struck, for after a quick turn it glided down some distance, and then fell just inside the German lines. On Aug. 31st, Captain Rees, with Flight-Sergeant Hargreaves, fought a powerful German machine for three-quarters of an hour. They then returned for more ammunition, and went out again to the attack. Finally the enemy's machine was brought down apparently wrecked.

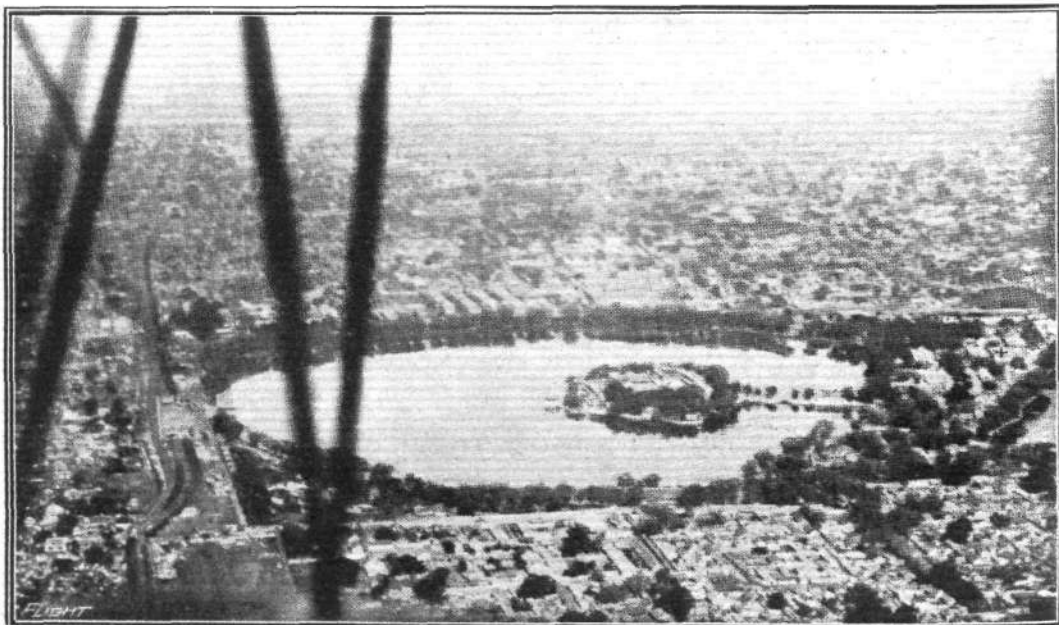
A "Wireless" Story.

IN the "Wireless" news sent out from Berlin on the 26th inst., there was the following :—

"According to the New York papers, a German aeroplane in the Dardanelles dropped bombs on an English light cruiser in September, thereby killing 145 officers and men, and injuring a still greater number. The Allies have concealed the incident, but the report has been made known by the engineer Eric Wilson, who returned on the Adriatic."

The Secretary of the Admiralty announces that there is no truth in the above statement.

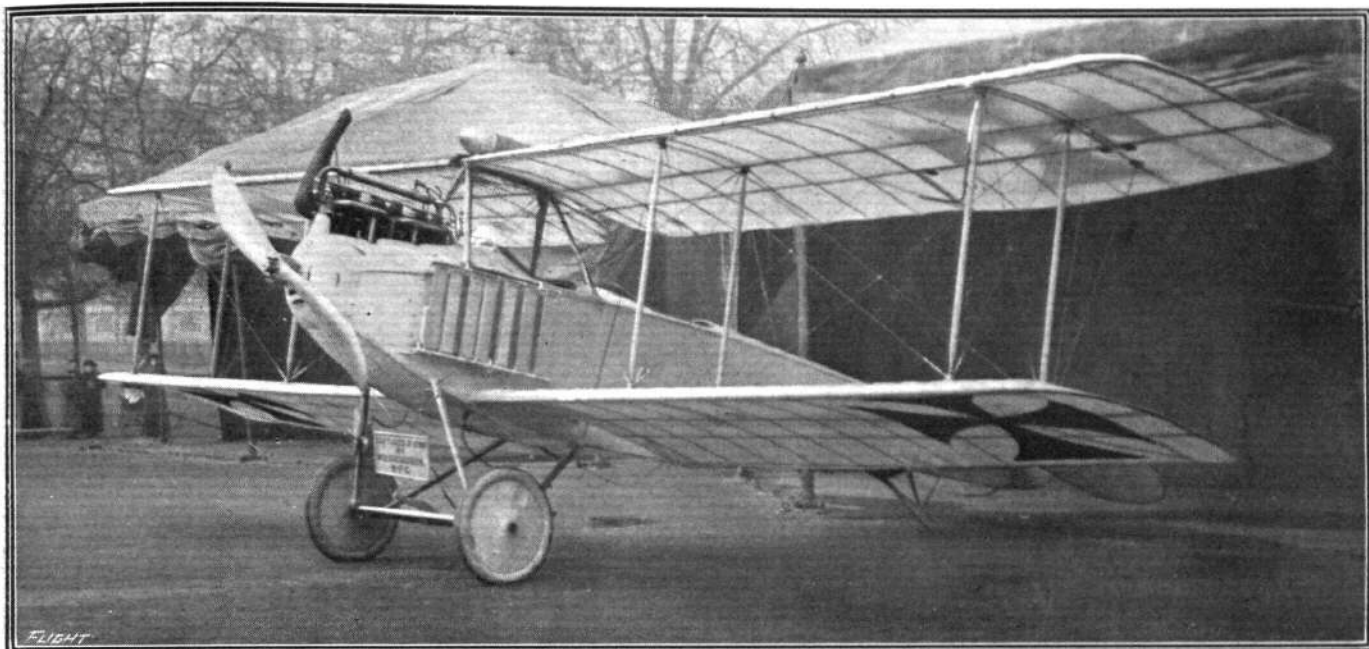
From Above.—Pekin, taken from one of the twenty Caudron biplanes of the Chinese Aviation Corps purchased before the present war. China is now securing further aeroplanes from the United States.—(By courtesy of Flying, U.S.A.)



THE CAPTURED ALBATROS RECONNAISSANCE BIPLANE.

OF the three captured German aeroplanes that have been for the last couple of weeks on view on the Horse Guards Parade the smaller of the two Albatros biplanes is, perhaps, the more interesting, seeing that it is of a later

altered and improved as a result, no doubt, of the lessons learned since then in actual warfare. One of the chief characteristics of the older machine—namely, that of building up the *fuselage* without the use of wire



Three-quarter front view of the captured Albatros biplane.

"Flight" Copyright.

type than the larger fighting biplane of the same make. The majority of our readers will already be familiar with the general design and construction of the Albatros machines from the description given in our issue of April 4th, 1914, of the biplane flown over here by the well-known pilot Robert Thelen.

bracing—has been retained, so that it would appear that this form of construction has stood the test of time. The main framework of the Albatros *fuselage* consists of six longitudinals, of which the two lower ones are ash and the rest spruce. At intervals of a couple of feet these longitudinals are connected by struts and cross

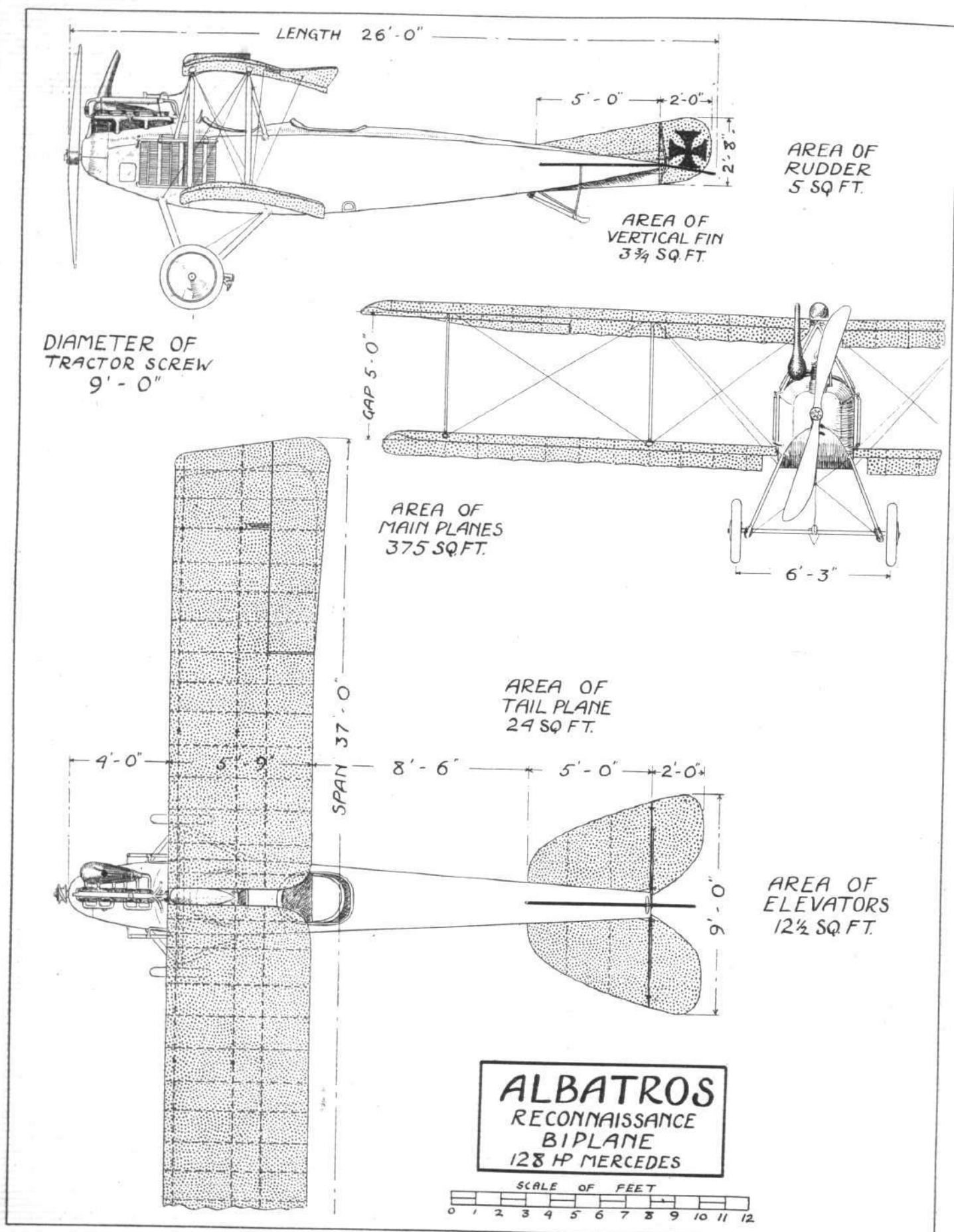


Three-quarter rear view of the Albatros biplane.

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In its general arrangement the reconnaissance type, which is evidently a fairly recent model, does not differ to any great extent from the larger machine seen at Hendon last year, but numerous details have been

members, swelled out where they pass the longitudinals and abutting with their ends on small angle pieces, also of wood, the latter surrounding the two inner sides of the longitudinals. Instead of the usual wire bracing,



THE CAPTURED ALBATROS BIPLANE.—Plan, side and front elevations to scale.

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rigidity is obtained by a covering of three-ply wood screwed to the longitudinals, a form of construction which was criticised by several experts at the time of the visit by the first Albatros, but which nevertheless seems to have stood up to the hard usage of aerial warfare in a satisfactory manner.

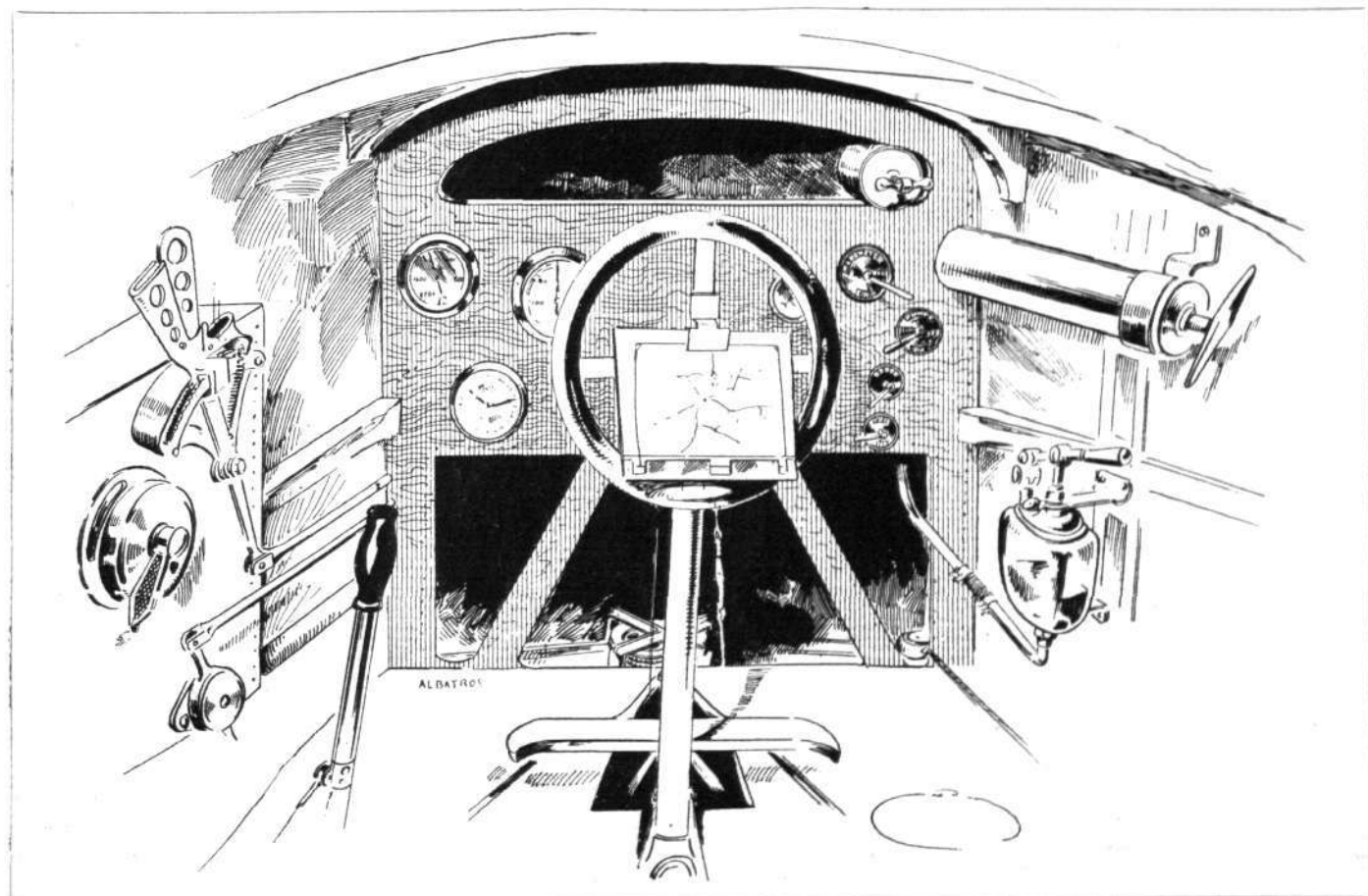
In the stern the body flattens out to a horizontal knife-edge, somewhat after the manner of the Morane monoplanes. In order to strengthen the body at its shallowest part, and also to furnish a rigid support for the steel tube that serves as a pivot for the rudder, a short keel-like fin made of wood runs along the bottom of the body from the stern forward to the tail skid supports. Seen from the rear this keel is shaped like a T with the angles between its vertical and horizontal members rounded off. A turtle back runs along the entire top of the body, its highest point being just in front of the observer's seat.

Mounted on two stout longitudinal bearers, which are in turn supported on transverse members of ply wood, is the 128 h.p. Mercedes engine, in the general design of which no radical alterations appear to have been made. The usual Bosch hand-operated starting magneto is fitted so that, after swinging the propeller to draw a charge into the cylinders, the mechanic can get out of the way leaving the actual starting of the engine to the pilot.

As in the larger machine flown by Thelen the two seats of the reconnaissance biplane are placed in tandem, with the observer in front. To the left of the observer's seat and in the floor-boards of the body is a circular opening closed by a trap door through which evidently bombs are dropped. In front of the observer is mounted a wireless transmitter, current for which is furnished by a small generator mounted on the front right-hand chassis strut. The generator for the wireless set, instead of being driven from the engine, was driven by a small propeller, or, more correctly



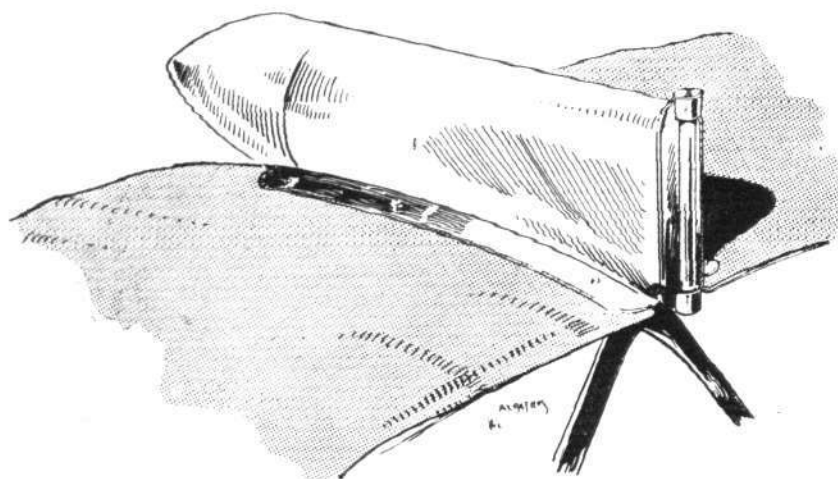
"Flight" Copyright.
Chassis and engine of the Albatros two-seater reconnaissance biplane.



"Flight" Copyright.

Sketch showing the very complete set of instruments carried on the captured German Albatros reconnaissance biplane.

speaking, from a windmill shaped like a two-bladed propeller. The antenna of the wireless set takes the form of a stranded copper cable passing from the observer's cockpit through a short copper tube with a bell mouth.

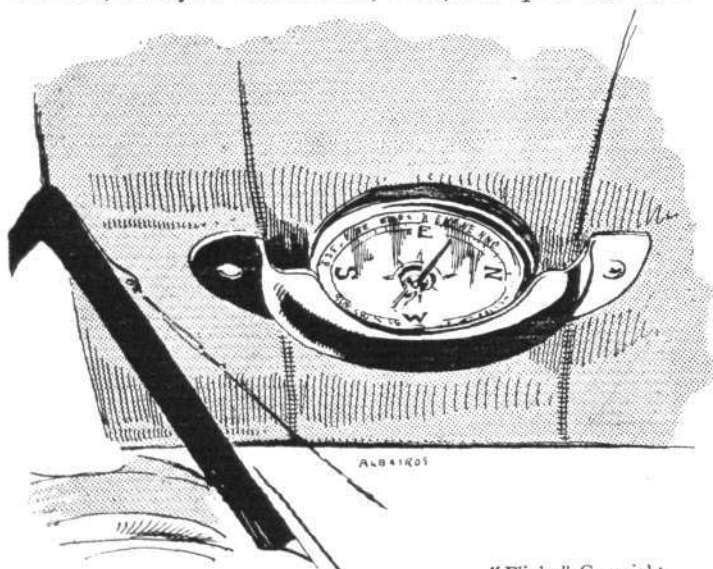


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In one of the captured Albatros biplanes the petrol service tank is mounted on top of the upper plane. As will be seen from the sketch, it is fitted with the usual gauge for indicating the amount of petrol in the tank.

At its lower end this antenna is weighted with a piece of lead so as to prevent it from being blown straight back by the force of the wind. When nearing the ground the observer winds the copper cable up to prevent it catching in obstacles when making a landing.

On the dash in front of the pilot are mounted a number of instruments, including the Bosch starter, double switch for switching on the ordinary magnetoes once the engine has started on the hand-operated magneto, throttle and spark levers, petrol gauge, revolution indicator, manometer, tell-tale glass and pressure pump, clock, altimeter, and last, but by no means least, a *Clift* air speed indicator.



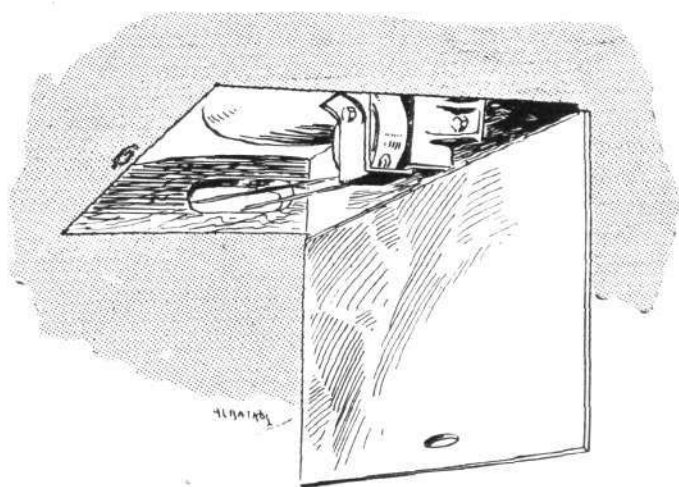
"Flight" Copyright.

The compass has been mounted in a somewhat unusual fashion on the Albatros biplane, as shown in the sketch. It is placed in the inner portion of the top plane, where it can be seen by both pilot and observer.

The compass, instead of being mounted in front of the pilot as is usually the case, is built into the top plane in a position where it can be seen by both pilot and observer. The accompanying sketch will explain the placing. The

controls are the usual ones, and consist of a wheel for the elevator and *ailerons* and a pivoted foot bar for the rudder. One of the reasons why some pilots prefer the single lever control, or "stick" as it is termed in aviation parlance, is that the wheel tends to interfere with the reading of the map. This difficulty has been overcome in the Albatros by placing the map-holder on the wheel itself in the manner shown in one of our sketches. Behind the pilot's seat is a large fabric bag evidently intended for despatches. In order to improve the view in a downward direction obtainable from the pilot's seat the trailing edge of the lower wing has been cut away near the body.

Petrol is carried in a main tank placed under the observer's seat, and the fuel is forced by a pressure pump to the little streamline service tank mounted on top of the upper wing, whence petrol is gravity-fed to the carburettors. Filling the main tank is accomplished through a little circular door in the right-hand side of the body.



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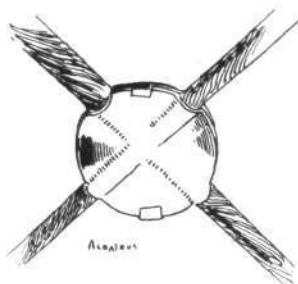
Inspection door for the *aileron* cable pulley on the Albatros biplane.

On each side of the body is mounted a radiator of a type that is very popular in Germany. It is, we believe, known over there as the Hazet radiator, and its chief claim to notice is that it is built up in sections, and that therefore by adding or taking away one or more sections any size engine or any climatic conditions can be suited. The two tubes, placed top and bottom respectively, which connect the various sections of the radiator are parallel with the sides of the body, and each section of the radiator is therefore set at an angle of the tubes so as to bring them into the line of flight. An examination of the accompanying illustrations will show the general arrangement.

In section and general construction, the wings of the reconnaissance type biplane are similar to those of the large machine seen at Hendon last year. The span, however, is a good deal shorter, and there are only two pairs of inter-plane struts on each side instead of the three with which the older machine was fitted. We have before now referred in our columns to the practice of the Albatros firm of having three sets of wings for each *fuselage*, one large pair with three pairs of inter-plane struts on each side, for weight-carrying and duration flights, one pair a little shorter with two pairs of struts a side, and a small pair with only one pair of struts on each side, for using the machine as a fast single-seater scout.

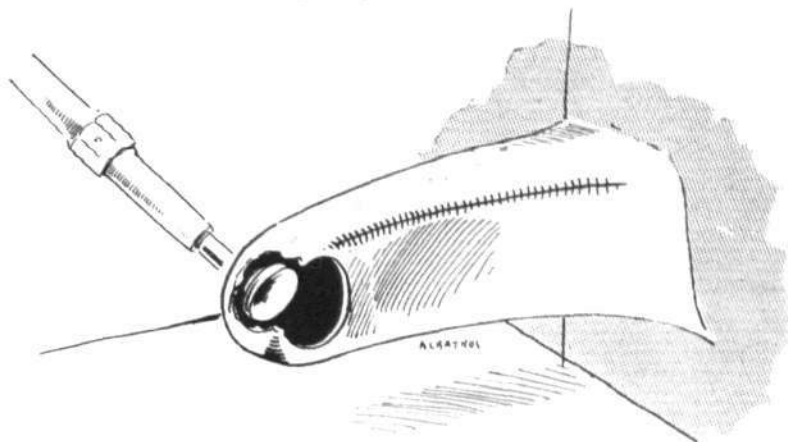
The inter-plane struts are streamline steel tubes tapering towards the ends, where they fit into eyebolts going through the main spars. The method of attaching the bracing cables is identical with that employed on the older machine, and which was illustrated in our issue of April 4th, 1914. A steel shell rests on a fibre pad that is shaped to fit the curvature of the plane. Inside this shell is carried a steel ring to which are attached the turnbuckles of the bracing cables. The two main spars of the wings are placed comparatively close together, giving a rather great amount of unsupported trailing

then still further in order to meet the air at a negative angle of incidence. The method of operating the *ailerons* differs from that usually employed over here in that the crank levers are horizontal, working in a slot in the upper plane. The control cables pass from the drum on the column round pulleys mounted on the floor in front of the



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The bracing cables of the captured Albatros biplanes are held together by the neat little clips shown in the accompanying sketch. In earlier models of these and other German machines small slotted rubber or fibre balls were used for this purpose.



"Flight" Copyright.

Rudder and elevator crank levers of the Albatros biplane.

edge. A short distance behind the main rear spar is another spar, or perhaps it would be more to the point to call it a former since none of the bracing cables are attached to it, forming at its outer portion a support for the *aileron* hinges. The *ailerons*, fitted to the top plane only, are given an upward turn towards the tip so as to make their outer ends meet the air at a negative angle of incidence, an arrangement which appears to have been chosen with a view to rendering the *ailerons* more efficient inasmuch as the one on the high side is already having a depressing effect when in its normal position, increased immediately as soon as the *aileron* in question is moved upwards, while with the ordinary form the *aileron* has to move first up to the angle of no lift and

footbar to pulleys inside the wings and near the end of the lower plane. Hence the cable passes to the *aileron*, whilst the return or equalising cable runs to the *aileron* crank lever.

The two halves of the upper plane are attached to a *cabane* of steel tubes bolted with their lower ends to the upper longitudinals of the body. The main spars of the lower plane are secured to the *fuselage* in the manner shown in one of the accompanying sketches.

The tail planes present no novelties either aerodynamically or constructionally. There is the usual flat tail plane or stabiliser to which is hinged the divided elevator. On top of the *fuselage* is a triangular fin, to which is hinged the rudder. The crank levers, operating

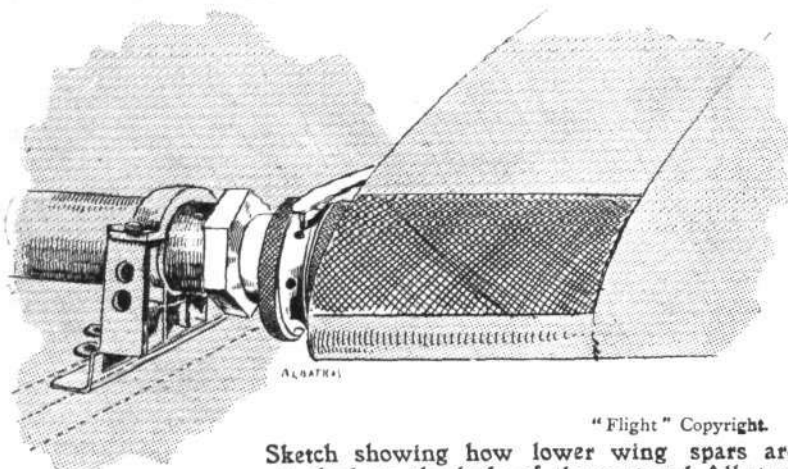


Side view of the captured Albatros biplane.

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elevator and rudder are rather neatly designed having at their outer ends a concave socket into which fits the hemispherical head of the turnbuckle.

The undercarriage is of the simple "Vee" type, having



"Flight" Copyright.
Sketch showing how lower wing spars are attached to the body of the captured Albatros biplane.

streamline steel struts that fit with their upper ends into sockets on the lower longitudinal of the body. The apexes of the two "Vees" are connected by a transverse tube, and the tubular axle rests in the angle between the

struts. The rubber shock absorbers are wound around the apex of the "Vees" and are protected against contact with the ground by leather guards strapped to the struts and passing underneath the shock absorbers. No radius rods are provided, but the movement of the axle is restricted by a short length of stranded cable on each side running from the front to the rear chassis strut. Pivoted on the centre of the axle is a brake similar to that with which Thelen's machine was fitted. This brake, which has a claw shaped somewhat like a plough-share is operated through a cable by a lever placed to the left of the pilot's seat. When wishing to bring the machine to a stand-still, the pilot pulls this lever towards him against the action of spring, and the claw digs into the ground checking the speed of the machine very quickly, but tearing up the ground in a comprehensive manner that would exclude the use of the brake when landing on such unmilitary grounds as parks and cricket grounds. If, however, there is no objection to doing a little ploughing, the brake is highly effective in pulling up the machine. A small tail skid sprung with

rubber cord protects the tail planes when making a landing. We regret that we have been unable to obtain any figures regarding the weight and speed of the Albatros reconnaissance biplane.

A FIGHT IN THE AIR.

THE following vivid details of an aerial duel, in which a British machine, piloted by Capt. Loraine, R.F.C., was the victor, are taken from a letter from the observer—the Hon. Eric Lubbock—on Capt. Loraine's machine, published in the *Eton College Chronicle* :—

"Yesterday Loraine and I had an exciting adventure. We sighted a German about four miles off and attacked. We both opened fire about fifty yards. I fired again at about twenty-five, firing twenty-six rounds, and then my gun jammed. I heard Loraine give a great shout, but felt neither fear nor triumph. Then our machine turned downwards. As I fired my last shot I had seen the German turn down. I knew that if he got below us my machine gun was the only one that could fire at him. We were diving, I standing almost on the front of the body. Then we turned level. I finished my gun, but there was no German! But our guns (Loraine's and mine) had jammed at the same moment. I spent another five minutes at Loraine's gun; finally got both done. We saw another enemy coming in the distance. Loraine went all out to climb and attack, while I put my stiff and aching hand in my mouth praying for sufficient life to come back to them; they were frozen. Then our engine stopped, and we were helpless, so we turned and glided homewards. Unable to reach the aerodrome we landed in a plough, a beautiful landing.

"Loraine left me and went for help. Of course the crowd came from all sides. One Frenchman, remarking 'Vous avez l'air fain,' fetched me some beefsteak and coffee, for which I was most grateful. A 'Tommy' gave me a cigarette. Well, the luckless Boche fell twenty yards behind our front line trench. The pilot was shot through the stomach; the observer, a boy of seventeen, just grazed in the head. In spite of his fall he will be all right, but yesterday he was crying and absolutely nerve broken. No wonder, poor thing! The pilot was dead before they got him away. On the machine was found an old machine-gun. It had been taken from the Canadians months ago, and now has come back to them. It is absolutely unfit for aeroplane work. There was a camera with a Zeiss lens, which will be most valuable to us, although the camera was pierced by two bullets. There were some plates which are being developed at this

moment. The camera is heavy and clumsy, not a patch on ours. It is such that you cannot take a vertical photograph. There was a carbine—a very nice weapon. There was a pistol for firing coloured lights, which had been hit by us and spoiled. There was a priceless pair of binoculars, magnifying eighteen times. I am to take all these things myself to the G.H.Q., which makes me very shy.

Combat Described by Onlookers.

"I went to a town last night to have my hair cut. I walked with some 'Tommies.' 'Lummy,' said one to the others, 'did yer see that fight in the air this morning? German fell twenty yards behind our trench.' Then followed a glowing account of the fight, with details I was unaware of. I went to a shop to buy a broom, and the shop-woman asked me if I had seen the fight this morning. I said I had. But nevertheless she gave me a description, gesticulating and copying our every movement. So with everyone. The Frenchman who brought me breakfast after we landed had watched it all, seen the German fall, and followed us in. Altogether it is the excitement of the land.

"I believe they are going to give me the German carbine. I was congratulated by the General Officer Commanding the Royal Flying Corps, who said he would get recognition for a 'very plucky effort.' To-day I went to see and photograph the remains of the 'German' bus. It was rather destroyed, as they have taken out the engine. It was the latest type. The German observer says he was given to understand that we tortured all our prisoners, and wondered when it was going to be over. He was also much surprised to hear that he was going to be taken to England, as the German Navy has control of all the seas, and England is completely cut off! Now one can understand why they go on fighting.

"If my gun had not been jammed after the fight, and if another Hun had not appeared in the distance, I'd have photographed him falling, but I was much too busy at the time, seeing that we were forced to land instead of fighting the second machine. I am sorry now, but one has to act so quickly; it is the half minutes which make the difference, and to get the gun going is the most important thing."

Women and Military Aviation in U.S.

THE "Women of 1915," an American organisation, have decided to raise a fund of \$10,000 to supply an aeroplane for the coast defences of New York. In order to start the fund a ball is to be held in New York on December 8th.

Miss Lyra Brown Nickerson of Providence has presented an aeroplane costing \$7,500 to the Militia of Rhode Island. In connection with the scheme for establishing landing stations throughout the country, Miss Mary E. Burt, the authoress, has offered

to present ground for such a station at Englewood Cliffs, Coytesville, N.Y.

U.S. Army and Navy Aeronautics.

THE new Estimates which have just been prepared in the United States allot \$2,000,000 for the Navy and \$3,750,000 for aeronautics, but there is no provision for developing aeronautics in the National Guard or Naval Militia. It had been hoped that the campaign instituted by the Aero Club of America would have resulted in \$7,500,000 being allotted to the Navy, and it is hoped that even now the amount allowed may be considerably increased.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Aviators' Certificates.

THE following Aviators' Certificates have been granted:—

- 2032 Flight Sub-Lieut. Leslie Oswald Brown, R.N.A.S. (Short Biplane, Royal Naval Flying School, Eastchurch). Oct. 14th, 1915.
- 2033 Flight Sub-Lieut. Charles Jarvis Moir, R.N.A.S. (Short Biplane, Royal Naval Flying School, Eastchurch). Nov. 7th, 1915.
- 2034 Second Lieut. Geoffrey Jervis Read (4th North Staffordshire Regt.) (Maurice Farman Biplane, Military School, Farnborough). Nov. 7th, 1915.
- 2035 Flight Sub-Lieut. Benjamin Cecil Tooke, R.N.A.S. (Maurice Farman Biplane, Central Flying School, Upavon). Nov. 11th, 1915.
- 2036 Leslie Porter (L. and P. Biplane, London and Provincial School, Hendon). Nov. 14th, 1915.
- 2037 Wilfrid Hardinge Tolhurst (Maurice Farman Biplane, Military School, Brooklands). Nov. 15th, 1915.
- 2038 Peter Tremlett (Maurice Farman Biplane, Military School, Brooklands). Nov. 15th, 1915.
- 2039 Hugh Henry Macleod Fraser (Grahame-White Biplane, Grahame-White School, Hendon). Nov. 15th, 1915.
- 2040 Lieut. Gerard Hume Morton (48th Batt. C.E.F.) (Maurice Farman Biplane, Military School, Ruislip). Nov. 15th, 1915.
- 2041 Flight Sub-Lieut. Ronald Graham, R.N.A.S. (Grahame-White Biplane, Grahame-White School, Hendon). Nov. 15th, 1915.
- 2042 Clifton de Maine Franklin (L. and P. Biplane, London and Provincial School, Hendon). Nov. 15th, 1915.
- 2043 Second Lieut. Stanley Edward Adams, R.G.A. (Maurice Farman Biplane, Military School, Birmingham). Nov. 15th, 1915.
- 2044 Hubert Stanford Broad (Hall Biplane, Hall School, Hendon). Nov. 15th, 1915.
- 2045 Flight Sub-Lieut. John James de la Tour Fox, R.N.A.S. (Maurice Farman Biplane, Central Flying School, Upavon). Nov. 16th, 1915.
- 2046 Capt. Thomas Reginald Dowdeswell (Welsh Regt.) (Maurice Farman Biplane, Military School, Ruislip). Nov. 16th, 1915.

Extension of the Hours of Opening the Club.

The Club is now open from 9 a.m. to 10.30 p.m. each day, including Sunday.

New Members.

Members are reminded that, according to the Rules, the Annual Subscription of any New Member they may propose, who is elected between November 1st and December 31st of this year, will cover the period up to December 31st, 1916.

THE FLYING SERVICES FUND administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.

	£	s.	d.
Total subscriptions received to Nov. 17th, 1915	10,046	19	4
Staff and Workers of Gwynnes, Ltd. (Third contribution) ...	9	18	4
R. and A. Weekes ...	0	15	0

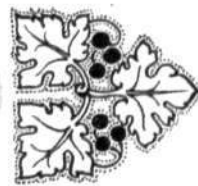
Total, November 24th, 1915 ... 10,057 12 8

B. STEVENSON, Assistant Secretary.

166, Piccadilly, W.



FLYING AT HENDON



On the whole, there is not much to report in connection with flying at Hendon last week-end, as the proceedings were very much the same as usual. On Saturday afternoon only a few of the Hendon pilots were out, and even school work was conspicuous for its absence. Marcus D. Manton, M. Osipenko (Russell), C. Pashley, and J. S. B. Winter made several trips on the 60 h.p. (Le Rhone) G.-W. 'buses. Russell, who did not, after all, meet with the terrible fate mentioned in last week's report, was in somewhat a merry mood, to judge by his friky form of flying.

J. H. Moore, who has been away some weeks flying seaplanes, took a "busman's" holiday during a few days' rest and paid a visit to his old love, the 55 h.p. "Almanac," and indulged in a few flights. On one occasion he made two attempts to loop, but could not manage to get his 'bus over the top of the curve, and so a tail slide resulted in each case. Lieut. F.

Warren Merriam paid a flying (literally) visit with a pupil on a Maurice Farman short-horn, and an unknown pilot made some picturesque flights on a B.E.2c. Just as it was getting dusk some of us received a rather startling shock when we observed a machine on unmistakably German lines—swept-back wings—circling over the 'drome. It spiralled down close to the Aircraft Works outside the aerodrome, and we waited for the bombs. They did not come, however, and then the 'bus turned and landed in the aerodrome, when we found that our visitor was our old friend the Handley-Page biplane in a new suit of planes.

Sunday afternoon was cold and rather dull, but several pilots were good enough to oblige. Manton, Russell and Pashley were out on the 50 h.p. and 60 h.p. G.-W. 'buses; Moore again indulged in an "airman's holiday" on his 'bus, R. Kenworthy flew the 50 h.p. Beatty-Wright, and G. Virgilio the 45 h.p. Beatty-Caudron.



London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School (R.N.A.S.).—Straights last week with Instructor: Probationary Flight Sub-Lieuts. Aird, Armitage, Burden, Horniman, Malet, Ovens and Saint. Circuits with Instructor: Probationary Flight Sub-Lieut. Moody. Circuits alone: Probationary Flight Sub-Lieuts. Aplin and Davenport.

Brevets during week: Probationary Flight Sub-Lieuts. Cross and Graham.

Grahame-White Civilian School.—Straights with Instructor: Messrs. Franck, Henshaw, Howe, Leigh, Yates, Philippi and Gammon. Circuits with Instructor: Mr. Hughes. Circuits alone: Mr. Horridge.

Brevet during week: Mr. Fraser.

Instructors during week: Messrs. Manton, Pashley, Russell and Winter.

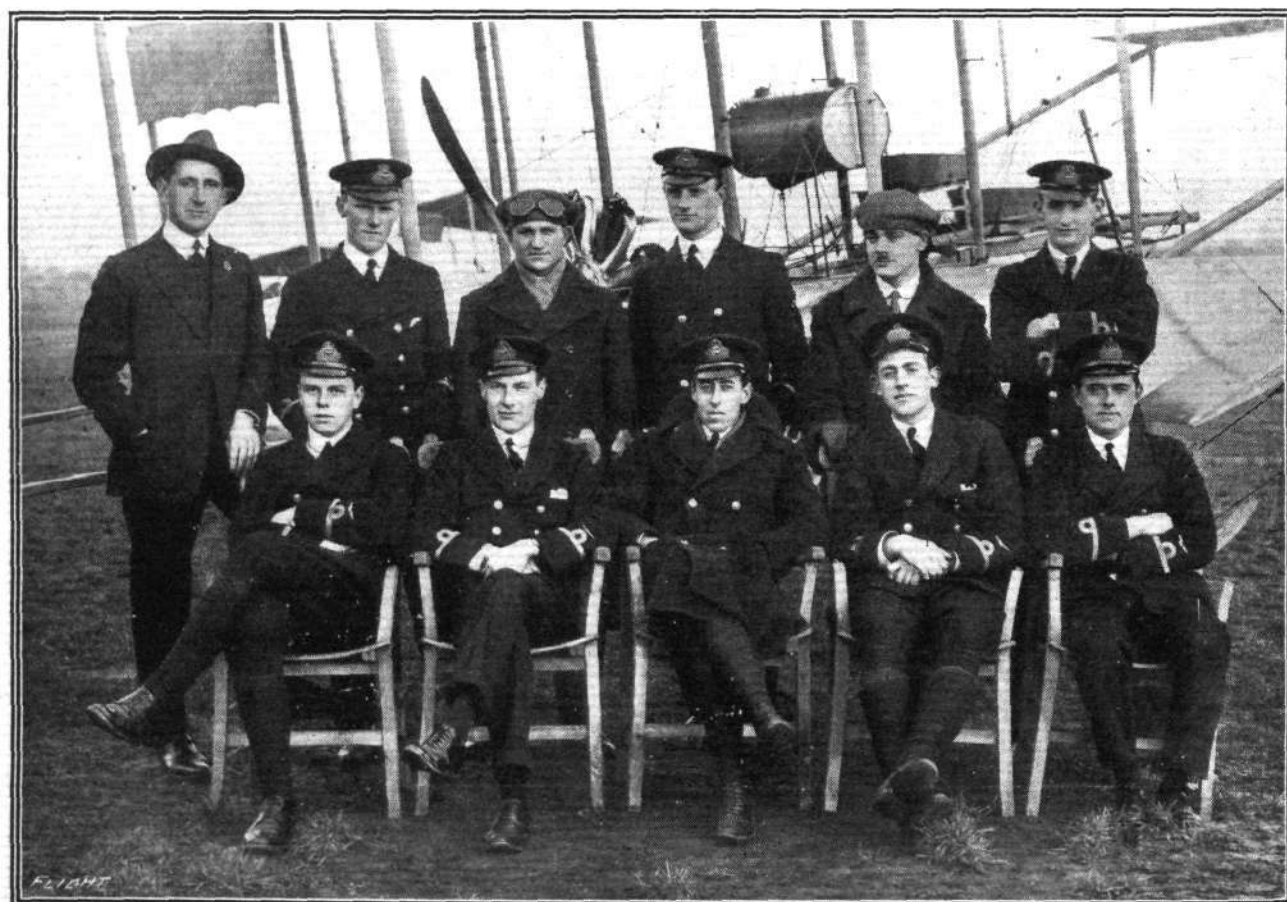
Beatty School.—The following pupils were out during last week: Messrs. Baldwin, Baker, Barrow, Begg, Bond, Bowick, Brynildsen, Byrne, Collett, Collier, Edwards,

Fellowes, Fox, Fry, Gayner, Hodgson, Kirkwood, Murdoch, Nicholson, Onley, Overton, Podmore, Richard, Samter, Schollaert, Smith, Willmet, Barnes, Godfrey, Scott, Williams, Summers, Paterson and Drysdale.

The instructors were Messrs. G. W. Beatty, W. Roche-Kelly, R. W. Kenworthy, G. Virgilio, A. E. Mitchell and L. L. King; the machines in use being Beatty-Wright dual-control and single-seater propeller biplanes, and Caudron tractor biplanes.

Exhibition flights were given on Saturday and Sunday by Messrs. Kenworthy and Virgilio.

Hall School.—The following pupils received instruction during last week:—With H. F. Stevens: Messrs. Broad and Drew, all doing circuits, *vol planés*, landings and figure eights solo. With Cecil M. Hill: Messrs. Manley, Wilkins, Cook, Evans, Rattray, Dresser, Shum, Butterworth, Nicolle, Dodd, Stirling, Sepulchre, and Lieut. Bell. With Charles Bell: Messrs. Bond, Cumberbirch, Arnsby, Wooley, Mann, Capt. Grey, Redford,



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AT THE GRAHAME-WHITE NAVAL SCHOOL OF FLYING.—Back row, left to right: 1. A. Murray Ross. 2. Flight Sub-Lieut. R. Graham. 3. M. Osipenko. 4. Flight Sub-Lieut. H. G. T. Saint. 5. M. D. Manton. 6. Flight Sub-Lieut. R. N. Davenport. Front row: 7. Flight Sub-Lieut. R. H. Horniman. 8. Flight Sub-Lieut. W. H. S. Aplin. 9. Flight Sub-Lieut. G. R. Moody. 10. Flight Sub-Lieut. B. C. H. Cross. 11. Flight Sub-Lieut. F. A. R. Mallet.



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THE HALL FLYING SCHOOL, HENDON.—Some pupils who have recently secured their brevets: 1. Mr. W. E. L. Seward. 2. Mr. F. Hall. 3. Mr. N. Sorensen Bangs.

Ormerod, Smith, Milburn, Cosgrave, Chapman, Thom, Bennett, Niel, Robert, Baron Ackroyd, and Le Coq Moir.

Machines in use: Hall tractor (Government type), tractor biplanes.

The Hall Flying School announce that there are positively no more vacancies for the present month, so that prospective pupils should book early for possible December and January vacancies.

New machines are now being put through as quickly as possible to accommodate new pupils who are anxious to join up with the school.

Owing to the bad weather recently, flying practice has been somewhat curtailed at most of the British aero-

dromes, therefore the training period is lengthened in some cases beyond the average.

London and Provincial Aviation Co.—Pupils doing rolling last week: Messrs. Martin, Lees, Roberts, Loomes, and Dawson. Doing straights: Messrs. Hunt, Heyn, Jowett, Knowles and Lambert. Doing circuits: Messrs. Lewis and Burgess.

Instructors: Messrs. W. T. Warren, M. G. Smiles, C. M. Jacques, Sykes, and W. T. Warren, jun.

Royal Aero Club Certificates were taken by Messrs. Leslie Porter, Clifton Franklin and W. T. Warren, jun.

Ruffy-Baumann School.—The following pupils have been given instruction last week on the Ruffy-Baumann machines (50 and 60 h.p.): Messrs. Cole, Harkness, de



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A GROUP OF PILOTS WHO HAVE TAKEN THEIR CERTIFICATES AT THE BEATTY SCHOOL OF FLYING, HENDON.—The whole of these pupils took their tickets between November 6th and 8th under the instruction of Mr. Virgilio, who is well known to the readers of "FLIGHT": 1. Mr. C. S. Duffus. 2. Mr. J. V. Nash. 3. Mr. H. Fawcett. 4. Mr. A. F. Lashmar. 5. 2nd Lieut. P. C. Campbell, 4th Argyll and Sutherland Highlanders. 6. Captain G. A. Cadogan-Cowper. 7. Mr. J. A. Brown.

Grauw, Vernon, Coppens, Wood, Cuthbertson, Bolton, Liddell, Griffiths, Launoit, Sherwood, Tomson, Laidlaw, Yiule, Cox, Hamtiaux, Pauli, Dobson, Fraser and Sherwood.

Instructors: Edouard Baumann, Felix Ruffy, Ami Baumann, and Clarence Winchester.

Mr. H. S. Liddell should have completed his certificate tests by the time this report appears, and several other students are on the point of passing for their *brevets*.

Northern Aircraft Co., Ltd.

The Seaplane School, Windermere.—With instructors last week: Hallet (35 mins.), Harvey (20), Holden (18), H. Ingham (26), P. H. Ingham (14), Lawton (39), Jeffries (9), Lindner (19), Ruthven (23), Sutton (27) and Lieut. Stubbs (36). With Instructor as passenger:

Barber (16 mins.), Benson (15), Coats (23), Lawton (10) Macintyre (12), Robinson (27), and Ridgway (61), Figures of eight: Reid (29 mins.) and Coats (31).

Instructors: Messrs. W. Rowland Ding and J. Lankester Parker.

Machines: N.A.C. 80 Gnome biplane and Blackburn monoplane, 100 Anzani.

Messrs. Reid and Coats passed test A for R.A.C. certificate.

Jack Coats went for his ticket after only 90 minutes' tuition. He was unable to finish owing to mist and failing light, but amply proved his instructor's confidence in him. He flew high and well, and his performance is all the more creditable, in that an 80 seaplane takes a deal more handling than a landplane, as many a land pilot has found to his edification and cost.

A LOOK ROUND BROOKLANDS.

A RUN down to Brooklands used to be one of the little pleasures to be looked forward to in the old days before it became munitionised and militarised, and when, in spite of less bustling, there was always enough going on to keep one keenly interested from the time one entered the gate until leaving again, and that was seldom till dusk began to creep over the landscape and stop all air-work. The old spirit that then reigned has departed to return no more, I am afraid, until after the war, whilst the new, which has taken its place, bears the impress of the strenuous times in which the nation is living. Even Mr. Cummings at the gate wears a military appearance, and looks at you, as you enter, with the suspicious scrutiny of a sentry. Nevertheless, there is a vast field to interest, and, moreover, to educate, as was evident on a recent visit to some of the hives of industry down in the "bowl."

Entering the group of sheds which, in the days of old, housed the Blériot school machines, but which have now, by removing a number of dividing walls, been converted into extensive shops, one is, in fitting "harmony," greeted by the siren-like dirge of the saws, the purring of planing and spindle machines, the rasping of files, and the blended notes of the hundred and one different sounds from the various machine tools of an aeroplane factory. It is, indeed, an object-lesson to pass through the numerous departments, from the smallest shops in which fittings are made to the large shed where the machines are erected. Never a point is missed, if you are under the guidance of Mr. Chereau, the general manager of the British Blériot firm. In this erecting shop there is nearly always at least one complete unit standing with its propeller dead up to the doors that open out on the aerodrome, its tanks full and everything ready for testing. Not, however, just now machines directly associated with the firm's name, but models bearing other names now of world-wide celebrity. By way of example, last week the majority of the machines coming through the works were Avro biplanes, each one under licence of the Avro firm. The excellent workmanship put into these machines was apparent to the most casual observer, and in this connection it should be remembered that, being laid down less than a couple of years ago, the Blériot plant is equipped with the most up-to-date machinery for the production of aeroplanes.

The organisation of these works, under the direction of Mr. Chereau, ably assisted by Mr. Davidson, his works manager, is now in such perfect order that everything appertaining to aeroplane construction is made at the works, with the exception of bolts, wire strainers and propellers, which articles, however, Mr. Chereau hopes to be able to include among those manufactured on the spot before long. In addition to the Avros, a batch of Blériot two-seaters will be coming through shortly, it having been shown by long experience that for school work these are hard to beat, owing chiefly, one imagines, to the extreme flexibility of the Blériot undercarriages. While remaining true to the original in general design, this new batch will, I am told, show considerable improvements in detail construction suggested by Mr. Chereau, and the result, it is hoped, will be a machine considerably faster and better in every way.

A visit to Brooklands without a look in upon the firm of Messrs. Martin and Handasyde would be but an apology for a call Weybridge way, and in this case it happens to be easy to combine duty and inclination, for Martinsyde workmanship and finish are a thing of beauty and a joy for ever. Once in their works one immediately notes, in various stages of construction, the new machine to which reference was made in *Eddies* some time ago. Being censorily restricted in describing new 'planes, it is impossible to give any adequate idea of the design and unique workmanship of this machine. And as to its performances, these are such as to make one stare in wonderment.

Had I previously entertained any doubts as to the standing-up powers of Martinsyde machines they would have been quickly and thoroughly settled after an inspection of the *fuselage* of the Martinsyde scout No. "o," which had recently been sent home for repairs. In spite of it having seen very strenuous work and having had any amount of rough handling, including school work, and having had a couple of undercarriages and goodness knows how many wings smashed, the *fuselage*, when returned to the works, was as true as the day it left the shed for the first time with Raynham on board to go through its test flights. Enough said!

P.

Mr. Redmond and a Taube.

ONE of the exciting incidents of Mr. Redmond's visit to the front occurred while he was speaking to the Royal Munster Fusiliers on the 18th inst. Writing from the British Headquarters, *The Times* correspondent stated that Mr. Redmond's visit had to

be curtailed owing to a Taube flying overhead exactly at the moment of his address. The neighbouring British anti-aircraft batteries immediately opened a brisk fire, and as they were not successful in bringing the machine down it was thought advisable not to prolong the ceremony unduly.



ARMCHAIR REFLECTIONS



By THE

"DREAMER."

CIRCUMSTANCES are in my avour. Time, and the law are propitious. Resurrection is about to happen to all those dead, New-Year's eve resolutions of bygone days. I am about to become good—by order.

To-day I may not ask my friend to wine; yet but a span, and I shall not even wine in solitude—I am also to become sober by order. Though it savours, to me, somewhat of Bobo's method of obtaining roast pig, yet I cannot but suppose that it is for the best. Before the Hun crusade in the interests of "kultur," methinks I should have got my head up. Provided with a martingale, I should have kicked over the traces. Restrained by a kicking-strap, I should have lain down, obstinate as any mule. A year's war-living has not broken my spirit, though I realise that I live to order.

I get to the office at my usual time in the morning, when it pleases the railway company to run my usual train. Instinctively I find my way to the station in the dark after my day's labour. Willingly do I sit in the darkened carriage with my evening paper in my pocket, and care not that I cannot read—because I do not want to.

I am not of the half-and-halfers, I am of the whole-hoggers. Could I avoid work, I would do so; make me work, and I will do far more than is absolutely necessary, out of sheer cussedness. Allow me to spend money, and I will spend lavishly, yet with a certain saving—force me to economise beyond my inclination, and I would, if left to my own devices, lace my boots up with office string. Away with your wine, I will have none of it.

Reading has been with me a recreation—my daily newspaper my messenger from the outer world. Newspapers, like myself, are living to order, and must obey the fiat, and as a faithful scribe would I yet support them to the extent of my small subscription were they but content to live to order and not "spare at the vent, and let fly at the bung-hole."

Though I do not agree that "no news is good news," yet I favour that no news is better than twisted news, and so the paper shall follow the wine; away with it, I will economise on my papers. It appears to me, that either this war has engendered a whole army of imaginative writers not over burdened with truth scruples, or there is a great dearth of blue pencils in some editorial offices.

Time was, when "From our Special Correspondent" at the head of a column gave rise in my mind to the thought that it might be read in safety. The words seemed to convey to me, that it was trustworthy, that it was from a trusted man, that every precaution had been taken at this end to authenticate. Should there be the least doubt in the editorial mind; should it look too good to be true, or too bad to be true, there was generally some little editorial note stating that the news was the best available, but that further reports were awaited.

The same heading at the commencement now causes a thought to wriggle into my brain, that the editorial department is endeavouring to shift the onus of what it

must know is at least doubtful, on to the scribe. The old time joke about the reporter, cautioned by his editor to do all he could to avoid a definite statement of fact, and always where possible say "alleged," and who therefore in reporting a Mayoral Party spoke of the Lady Mayoress as the alleged wife of the Mayor, having no data but hearsay to guide him, seems to be bearing fruit, but at the wrong end of the branch.

"Biplane falls 8,000 feet at Hendon. Pilot's skill saves himself and passenger." We had a full account of this in "FLIGHT" office before the papers were out, and I bought my copy knowing within a little what to expect, and was not disappointed. No doubt the skill of the pilot—I know that pilot—did save his own and his passenger's life by knowing what to do, and acting quickly. But this was at the end of an 8,000 feet "fall" which the said pilot spun out into a "joy ride" lasting over twenty minutes.

Why call it a fall, and why put in all the other lurid incidents? I know! and my paper goes the way of the wine. In living to order, I will order my living.

Here is a short *résumé* of something the like of which I refuse to read in future, though I am bound to accept it as true, printed as it is in a powerful daily, and written by a "special correspondent."

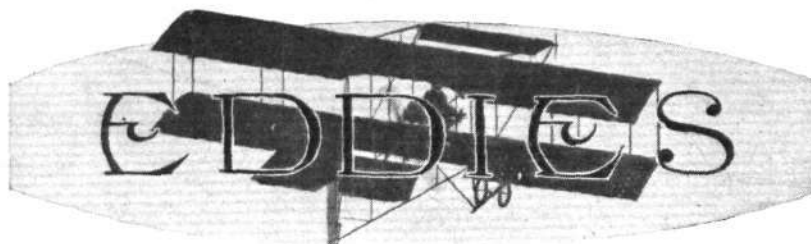
A pilot and observer were up "somewhere out there." The pilot was shot through the head. The observer had seldom handled a machine. He climbed along the stays, transferred the body of the dead man to the back seat, took his own place in the seat in front, and brought the machine safely down.

The correspondent says that this feat is one that amazed him most of all. I am entirely with him there—I am amazed beyond further amazing. Nothing that will furnish a startling head-line for a contents bill seems to be sacred in these days, as witness the parading of London recently by bills bearing poor Hamel's name in large letters.

I am a whole-hogger. I will not read another paper during the war, with the exception of the Saturday edition of an evening paper, illustrious at this period by its literary efforts.

I will rely for my news on what people tell me, nor will I contradict them. But I have the privilege of repeating to them, a few days later, that which they have told me, comparing it with their news of to-day. And they shall say, all of them, that that was what they read in their paper, and so I shall get the news, all the news, the daily news. When I want the weekly news, that relating to aviation, I shall be content with my "FLIGHT." For even though I help in some small measure to write it, I know there is no shortage of blue pencils in two of the rooms in this building—those of the Chief and his second-in-command.

I know not but that these sheets may lie on my desk to-morrow morning, azure as the sky, but so that the pencil is wielded in the cause of the respect and defence of our credulousness, I am content even though I cease writing—to order.



FROM the small photograph on this page, a very good idea may be formed of the extent of the damage done to the "Mann" biplane recently, when it collided with some trees after a flight to a height of a little over 8,000 ft., piloted by Mr. A. E. Barrs, with Mr. J. G. Woodley as passenger. This incident has been given quite an appreciable amount of publicity in the daily press;

Record of Flight in Mann Biplane Nov 16, 1915

Start	
10.28	3000 feet over Mill Hill Cold air
10.32 1/2	1000 3800 over Harrow
10.34 1/2	2. 5000 see Thames Hammersmith
10.47	3. 6000 over Stone going towards Mill Hill
10.47	4. 7000 over Harrow
10.54	5. See Thames beyond London
11.2	6. 7400 getting very cold
11.11 1/2	7. Chain broke
11.21	8. fairly over Stone
9	
10	
11	
12	
	She is quite steady, doing vol plané.
	Right Prop. going round all the time.
	11.26 We are coming down well.
	Barrs in great form.
	11.35 1/2 a.m. 3,500 ft. Coming down.
	Making well for the 'Drome.
	11.40 a.m. Coming along well.
	11.42 a.m. Almost in.

Unfortunately the various accounts were, almost without exception, so worded as to give a totally erroneous impression of what really did happen. From a letter received from Mr. Grimmer, it appears that the facts of the case were, briefly, as follows. Mr. Barrs accompanied by Mr. Woodley ascended in the "Mann" to try if possible to establish a new altitude record for pilot and passenger. At a height of between 8,000 and 9,000 ft. one of the chains went out of business and the engine stopped. The succeeding *vol plané* would have presented nothing out of the ordinary had not the machine when nearing the ground managed to get into one of the *remous*

that are so fond of playing tricks with aviators, with the result that it was found impossible to make the aerodrome, and by way of a compromise a landing had to be made outside. The final run ended in a collision with some trees. Comparatively little damage was done, however, even at that, the *fuselage* being intact and both occupants uninjured. In mere justness to the Hans Renolds chains employed, Mr. Grimmer wishes it stated that the fracture came about through no defect in the chain, but was due to the gearbox seizing up, the momentum of the propeller snapping the chain.

x x x

The preceding facsimile of the original log kept by the passenger, Mr. Woodley, and the "translation" thereof below, are of interest:—

Record of Flight on "Mann" Biplane, November 16th, 1915.

Start.	Height in Feet.	
10.28 a.m.		3,000 ft. over Mill Hill, cold air.
10.32 1/2	1,000	3,800 ft. over Harrow.
10.36 1/2	2,000	5,000 ft. see Thames, Hammersmith.
10.41	3,000	6,000 ft. over 'Drome going towards Mill Hill.
10.47	4,000	7,000 ft. over Harrow. See Thames beyond London.
10.54	5,000	
11.2	6,000	7,400 ft., getting very cold.
11.11 1/2	7,000	Chain broke fairly over 'Drome 11.23.
11.21	8,000	J. George Woodley.
		She is quite steady, doing <i>vol plané</i> .
		Right Prop. going round all the time.
		11.26 a.m. We are coming down well.
		Barrs in great form.
		11.35 1/2 a.m. 3,500 ft. Coming down.
		Making well for the 'Drome.
		11.40 a.m. Coming along well.
		11.42 a.m. Almost in.



The Mann biplane, after it had decided to stop.

The sudden introduction of the signature of the observer into the middle of the log is an example of calm forethought. Mr. Woodley at the moment of signing the document, it appears, had in mind the possibility of an accident from which neither he nor the pilot might emerge in a state to vouch personally for the details of the journey.

x x x

Although being unable actually to claim his R.A.C. certificate, being not yet of the age prescribed in the rules and regulations of the governing body, Mr. W. T. Warren, jun., has already acquired the knack of handling



Mr. W. T. Warren, jun., the son of Mr. W. T. Warren, of the L. and P. School, Hendon, who has already fully qualified, so far as the tests are concerned, for the Royal Aero Club pilot's certificate. Being under age, however, he cannot have the formal grant of the certificate until December 28th, when he becomes 17 years of age.

the L. and P. biplanes in the air to such an extent as to be able to pass with ease all the necessary tests of turns, climbs and figures of eight. His knowledge in this respect, combined with the good work he is doing in the factory, makes him very useful not only to Mr. W. T. Warren, his father, but to the L. and P. firm as a combination. With so early a start in practical flying young Warren should have a promising future in front of him, especially as he is steadily graduating in sound constructional work all the time.

x x x

I wonder how many of the earliest commercial pioneers of aviation who were also pilots are still flying to-day. Certainly not a great number of them. The Farmans, I believe, do quite a lot of flying still, and so do Caudron Brothers, and occasionally M. Blériot. The only one of the old school, however, so far as I know, who constantly tests his own machines is M. Louis Breguet, who,

nearly all his crack pilots having gone to the front, has, with the same determination that characterised his earlier efforts on the 'bus which earned for itself the nickname "The Flying Coffee Pot," set to work, and is now, I am told, putting a goodly portion of the Breguets through their trials. Not, of course, the Breguets that we knew in the old days, but a totally different and, from what I hear, a very fine type of large machine. Good luck to the old—in aviation years only—enthusiast!

x x x

"London will be at the mercy of the new bombs." This, according to James Dunn, the *Daily Mail* correspondent, is the view expressed by a German engineer in regard to a new "Aeroplane-Zeppelin," of which the Germans are boasting. It is to be sincerely hoped that the new method of obtaining buoyancy—i.e., by chambers from which the air is excluded—may be successful enough to enable one of these craft to get as far as the front and within range of the guns of the Allies. One can imagine the result of even a small bullet hole in one of the vacuum chambers. Any reader who would like to form an idea in a small way of what would then be likely to happen need only drop an electric bulb on the floor. There would probably be just about as much left of the "Aeroplane-Zeppelin" as of the electric bulb.

x x x

There is a passage in the communication written by Sir Mark Sykes of the British capture of Kut-al-Amara, which is somewhat amusing. "There is also a ship which is said to have started life as an aeroplane in Singapore, shed its wings but kept its aerial propeller, took to water and became a hospital." The ship that starts life as an aeroplane, even at Singapore, and then turns into a hospital should have its future career ensured. Perhaps after the war we may hope to see this ambitious aeroplane expand still more and become—well, there seem to be no limits to its usefulness.

x x x

Of all the stories circulated by correspondents of the daily press, describing feats performed by aviators, the one told by a correspondent of the *Daily Telegraph* will take some beating. It should be pointed out, however, that the correspondent himself seems to doubt this "tall" yarn, for he recounts it "with all reserve." The gist of the story is that an English officer was forced by engine trouble to descend in the enemy's positions. Here he was surrounded and told to give up his arms. He was then ordered to repair his engine, and when this was accomplished was told to resume his seat in the machine. This he did, taking the precaution to strap himself in. Two German officers got into the machine behind him, each holding a revolver, and he was told to fly over the British lines. Having reached a sufficient altitude, our hero calmly proceeded to "loop the loop," tipping the Germans, who were not strapped in, out of the 'bus, whereupon the pilot righted his machine and proceeded to the British lines. Sounds pretty "cayenney," don't you think?

⊗ ⊗ ⊗ ⊗

New Giant Scouts for U.S.

ACCORDING to the Washington correspondent of the Central News, the U.S. navy yard is building the first of a new type of giant aeroplanes, having a full-load capacity of about 6,000 lbs., which can be distributed among passengers and weapons, &c. The machine will carry at least one 3 in. gun, and will be equipped with two 160 h.p. motors, giving a speed of from fifty to eighty miles an hour and a maximum range of seven hours at full-speed. The new craft will be a most powerful long-range scouting aeroplane, and will at the same time be able to make rapid ascents or carry large quantities of heavy explosives.

THE "ARRIVAL" OF THE AEROPLANE.

By ALGERNON E. BERRIMAN, M.I.A.E., A.F.A.E.S., Chief Engineer of the Daimler Co., Coventry, England.

(Concluded from page 906.)

Control and Stability.
The Organs of Direction and Control. Thus far we have only considered the aeroplane as a simple machine similar in its principles of economy to any other power-propelled vehicle or craft. There remains, however, the far greater problem of its balance and direction in the air. This problem of aeroplane stability is one of much complexity, far beyond the scope of any review such as this even properly to introduce, and I think it will be the best plan if I enumerate the common organs of control that are to be found on any modern aeroplane, and make such remarks and references relating to the principles underlying them as seem appropriate to serve both the purpose of explaining their action and of directing the student to sources of further information.

When the Wrights* built their first glider in 1900, they employed two organs of control—an elevator and the "warp." The elevator was a horizontally disposed rudder† pivoted on an outrigger frame projecting in front of the wings. Its function was to correct pitching by adjusting the attitude of the machine in flight. On modern machines, the elevator is commonly a hinged flap extension to the tail plane. It is invariably operated by means of a lever that is moved to and fro; the rearward movement of the lever causing the machine to fly *cabré* (tail down) and *vice versa*. Inasmuch as each attitude of the machine requires a different velocity to maintain level flight, the elevator lever may be regarded as the change-speed control in somewhat the same sense that the change-speed lever is used on an automobile. The term "elevator" is derived from the use of this organ in adjusting the attitude of the machine for climbing; it has no power in itself, of course, to make the machine ascend, for that manœuvre can only be caused by exerting a surplus driving force.

Ascent and descent, in short, are controlled by the manipulation of the engine throttle; the elevator merely adjusts the balance of the machine into the attitude of longitudinal equilibrium proper to its speed and direction. Without reserve power, it is impossible to climb continuously, but the machine may be jerked upwards a few feet by momentum and at the expense of its speed if the elevator is suddenly tilted.

On the original Wright glider, the wing structure was contrived so that the surfaces could be warped out of their proper shape and thereby given a helicoidal twist, such that the angle of one wing tip became finer and that of the other greater than the normal attitude.

As a consequence of this, the lifting effort of the wing extremities also lacked balance, and this difference in pressure was employed for correcting any tendency of the machine to roll, and also for the purpose of steering. The presence of a rudder came later, when the Wrights found by experience that the warp alone gave unsatisfactory results. Used in conjunction with the rudder, however, it became possible to balance the machine without yawing from the intended flight path, and the improvement effected by this combination was so marked that the Wrights covered its use by a patent‡ that seems to have established itself in the enviable position of a "master" claim.

As a rule, the rudder is operated by foot-pressure on a pivoted bar, while the warp is manipulated by a hand wheel that is often mounted on the top of the elevator lever. The pilot is thus an essential link in the combination.

Where the warp is used without the rudder, the unequal resistances of the wing tips cause yawing, which it is the purpose of the rudder to correct. If the rudder is used alone for steering, the machine is liable to drift, for it has so little natural vertical surface that its ability to change its direction depends almost entirely on "banking," that is to say on the machine rolling over sideways sufficiently to tilt the wing pressure inwards towards the centre of the turning circle. Banking is, of course, promoted by the use of the rudder, inasmuch as the mere yawing of the machine accelerates one wing tip and so gives rise to a banking couple. In some machines this action is ordinarily sufficient; in others the combined use of the warp and the rudder may be essential for steering a course.

From a consideration of the elementary triangle of forces that obtains when an aeroplane is banked for steering (see Fig. 8), it is

* For a summary of the work of Wrights, see "Aviation," Chap. XII. For Wilbur Wright's own account of his earlier experiments, see the Transactions of the American Society of Western Engineers.

† The term horizontal rudder was originally used as the name of this organ of control, but gave rise to much confusion of thought.

‡ For a summary of the Wright Patent Litigation, see "FLIGHT," March 15th, 1913. Also "Aviation," p. 289. At the outbreak of war a test case against the British Government was about to ensue, but was settled out of court in favour of the plaintiffs.

apparent that increased power must be expended to maintain level flight; if the necessary reserve is not available, the machine must descend while turning, which at once opens up a source of potential danger when it is realised how easily a pilot may get trapped over water and bad ground when flying low with inadequate engine power.§

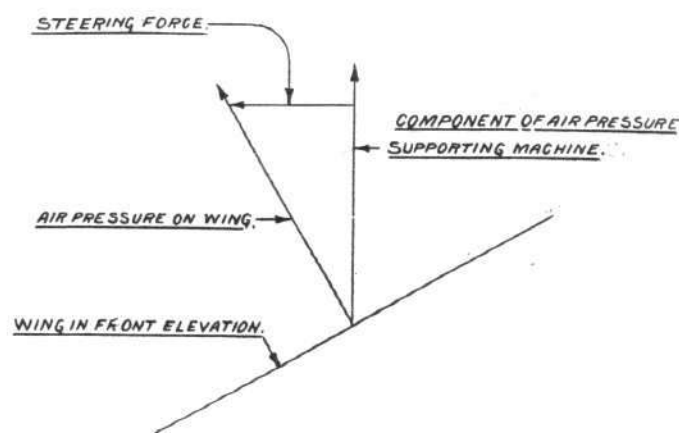


Fig. 8.—Diagram illustrating how a steering force is obtained by banking the aeroplane. An aeroplane has very little natural vertical surface to prevent drift, and steering is, therefore, accomplished by banking the wings. Banking results in a reduction of the vertical supporting force, and the aeroplane must descend while turning, unless there is sufficient reserve power (See Fig. 7) to increase the speed or to enable the machine to fly at a steeper angle.

Stability. Thus far I have confined myself to the pilot's control of the aeroplane, and have ignored entirely the machine's control of itself, which is properly to be discussed under the heading of stability. It is obvious that aeroplanes in flight must, even in the finest weather, constantly be subjected to disturbances. If, when disturbed, they tend automatically to recover their equilibrium, they are said to be stable: *vice versa*, instability implies that the disturbance augments itself until the aeroplane comes to grief.

There has never been any question as to the undesirability of designing an unstable aeroplane, but there has been considerable difference of opinion as to the degree to which it should be stable. Stability is, after all, mainly a problem of degree when it comes to a question of practical design, and, contrary to the belief of most inventors of stability devices, the stability of the more successful flying machines of to-day is very nearly neutral. At one time it was supposed that an aeroplane could not possibly be too stable—but this point of view disregarded the vital necessity of a responsive control. A very strong tendency to recover itself, or to resist disturbance, may be a desirable enough quality when the disturbance is accidental, but it becomes sheer mulishness when the disturbance is a voluntary act of control. Responsiveness to the pilot's manipulation of the levers is a quality of very great importance in an aeroplane, and it is opposed to the existence of strong self-righting tendencies. In short, the verdict of the practical flier is in favour of a machine that is nearly neutral—stable, but not too much so.

It redounds very much to the pluck and perseverance of the pioneers that the problem of producing a flyable aeroplane was solved first by practice, but it is also to the credit of the mathematicians that it should also have succumbed to theoretical analysis. From Leonardo da Vinci onwards there has hardly been a generation that did not produce its inventors of flying machines, but it was not until our own time that any real attempt was made to ride the air. Very few among the earlier thinkers seem to have grasped the possibility of gaining actual flying experience in the air by means of a very simple apparatus—the glider. For the most part, they were all concerned with the impossibility of making a suitable engine, and failed to appreciate that nature

§ For accounts of some of the most noteworthy accidents, see "Aviation," Chap. XVII. In England, accidents are investigated by a Special Committee of the Royal Aero Club. In 1912, the Government appointed a Departmental Committee to investigate certain accidents that had occurred to monoplanes, and the report can be obtained from H.M. Stationery Office.

herself could provide a suitable prime mover in the force of gravity.

It is with the name of Lillienthal that the introduction of the art of gliding is invariably associated, on account of the very wide influence of his practical work,* but chronological priority appears to rest with Prof. J. J. Montgomery of California, who made gliding experiments in 1884.†

The practice of gliding, that is to say the use of wings as a toboggan for sailing downhill through the air, brought the pilot into direct realisation of the difficulty of balance and direction, and this led, by degrees, to the evolution of a moderately safe machine. Many lives were lost‡ in the process, but the thought of danger availed little against the enthusiasm of those who were determined to learn to fly, and the advice of the mathematician who advised delay, pending the symbolical solution of the problem, was laughed to scorn.

Nevertheless, the scientific aspect is already assuming a very considerable importance in modern aeroplane design, and this is largely owing to the very painstaking labours of Prof. Bryan and Mr. Harper, who have worked out a basic method for the treatment of stability problems in general,§ and to the late Edward T. Busk,|| who was responsible for the stability calculations of the aeroplanes designed at the Royal Aircraft Factory.

As might be expected, the process scarcely represents mathematics in its most elementary form, and hardly lends itself to any brief explanation.

An aeroplane in flight has six degrees of freedom. It can move longitudinally, sideways, or vertically: it can also rotate about any one of these axes of direct motion.

A partial rotation about the transverse axis is called "pitching"; if about the longitudinal axis, it is called "rolling"; and if about the vertical axis, it is called "yawing." The situation is further complicated from the fact that rolling will produce yawing and *vice versa*—the general stability of the machine is thus a question of some complexity.

When a machine pitches, the oscillation will die out of its own accord if the tail is in proper relationship to the wings. In general longitudinal stability depends on the existence of a dihedral angle¶ between the wings and the tail. Thus in the elementary case of flat surfaces, the wings must be set at a steeper angle of incidence than the tail plane to produce longitudinal stability. In Bryan's mathematical treatment of these problems, the existence of stability, or otherwise, is shown qualitatively by the solution of an equation being a positive or negative quantity. In a method of treatment given in Lanchester's "Aerodynamics," the criterion appears in the answer being greater or less than unity. Quantitatively, the problem resolves itself into ascertaining the decrease in the successive maximum ordinates of the oscillation graph.

In describing the organs of control, it has been explained that the elevator forms an extension of the tail. The value of the tail as a stabilising organ is thus a variable quantity, so long as the elevator is under the pilot's control. Skillfully handled, the elevator will augment the natural stability of the machine—if used otherwise, it may promote dangerous consequences. The same may, of course, be said of each organ of control in turn.

If some disturbance causes an aeroplane to roll, it will immediately yaw also: for directly the wings become canted over to one side, the air pressure upon them possesses a lateral component that pushes the machine off its former course. It is by this means that most aeroplanes are steered; that is to say, an intentional roll, or bank, is established by warping the wings.

As the machine moves diagonally under the influence of the above lateral force, opposing pressures will be generated on any vertical surfaces that the machine may possess, and these pressures will tend to restore the initial balance, or augment the roll, according as the balance of vertical fin area lies above or below the centre of gravity.

So far as lateral stability is concerned, therefore, the fundamental problem resolves itself into a consideration of the effects produced by various dispositions of vertical fins, and on these lines it has been worked out by Prof. Bryan. In the actual design of a practical aeroplane, it is undesirable to introduce fins merely as stabilisers, and the endeavour is always so to dispose and proportion the

* Lillienthal was a student of aviation from boyhood, but only commenced his gliding experiments in 1881. His work inspired Pilcher in England, and Chanute, Herring and the Wrights in America. For a summary of his work, see "Aviation," Chap. XI.

† For an account of Prof. Montgomery's work, see Lougheed's "Vehicles of the Air," p. 138.

‡ Lillienthal and Pilcher were both killed by accidents to their gliders.

§ See Bryan's "Stability in Aviation."

|| Although his name was not widely known, Mr. E. T. Busk deserves to be remembered by future students of aviation for his pioneer work in problems of stability. He was also a brilliant pilot. During the early part of the war, he was flying at Farnborough when his machine caught fire and he was burned to death.

¶ The dihedral must open upwards V-fashion.

essential parts of the machine as to produce the desired fin effect. This, as may be imagined, calls for an uncommon combination of mathematics, practical experience, and sound engineering sense on the part of the designer, to say nothing of an infinite capacity for taking pains. Moreover, the study of meteorology in the form of wind gusts is equally essential, for it is the wind gust that disturbs the balance of the machine.

Having so briefly indicated the mere nature of the stability problem, and having no space for its further perusal, there remains no alternative but to refer in similarly laconic terms to one or two interesting phenomena observed in this field of research. For example, there is the fin effect of the propeller** and the influence of torque on the lateral balance of the machine. This latter force may be balanced by a fin or by a permanent warp, or a spring may be attached to the warp lever to give the same effect.

Mention was made in a recent paragraph of the need for a study of wind gusts. On some machines a gust will cause the wings to warp automatically and thus to some extent "spill" the wind. At first sight, this might seem to be a most desirable attribute, but, as is usual in such cases, there are two sides to the question.†† The automatic warping, itself, results from the disposition of the front and back wing spars and the travel of the centre of pressure on the wing when the relative wind changes its trend. In wings constructed to warp, the rear spar is hinged to the body, so that the other extremity can be raised or lowered, and the wing twists about the axis of the fixed front spar when warping takes place. Altering the position of the front spar serves to modify, or to eliminate, the self-warping tendency.

It is the inherent instability‡‡ (see Fig. 9) of the cambered wing considered as an aerofoil in isolated flight that is at the root of most of the trouble with aeroplane stability. A flat plate is inherently

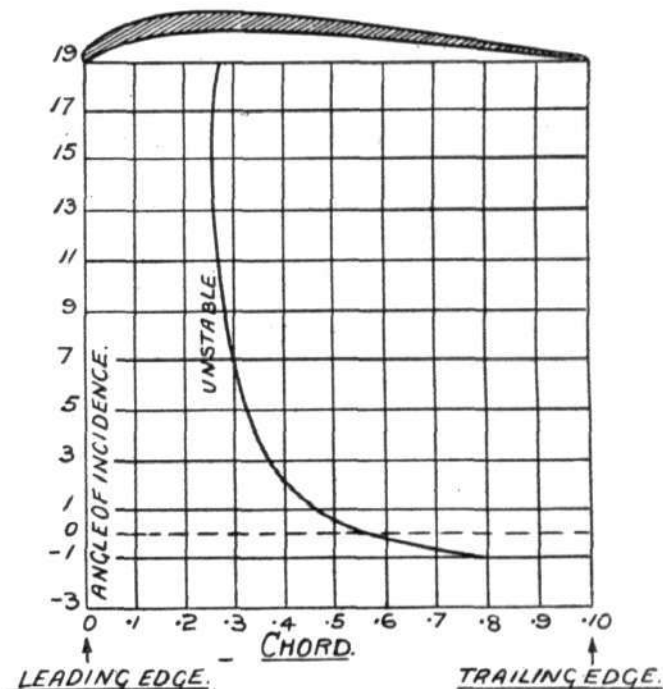


Fig. 9.—Graph illustrating the movement of centre of pressure along the chord of a wing as the angle of incidence is changed. This graph is for a particular wing section only. It will vary considerably with the profile of the section and particularly with the position of the maximum camber. In general, however, all cambered wing sections are inherently unstable, because the centre of pressure moves towards the trailing edge, as the angle of incidence becomes finer, and thus a disturbance tending to reduce the angle is augmented by the consequences of that reduction. With a flat plate, on the contrary, the centre of pressure approaches the leading edge when the angle of incidence decreases, and thus tends to counteract a disturbance and to produce natural stability in the system.

** See "The Technical Report of the Advisory Committee," Vol. 1912-13.

†† For comments on the automatic warp, see "The Technical Report of the Advisory Committee," Vol. 1912-13, p. 251.

‡‡ See "Aviation," Chapter VII. In "The Technical Report of the Advisory Committee," Vol. 1912-13, p. 101, it is pointed out that the centre of pressure moves suddenly to the rear near the wing tip.

table, as experiments with models readily demonstrate.* It is also possible to procure an inherently stable cambered section,† but, unfortunately, such sections as have hitherto been tried have been found to be strikingly "inefficient" from the standpoint of lift-resistance ratio.‡

Again, whilst making disjointed remarks on the subject of lateral stability, it is impossible to ignore the interest that attached to the negative wing tips of the Dunne aeroplane. The aim of the designer was to produce a very stable aeroplane, in the sense that it should be steady enough to be useful as a gun platform for fighting in the air. Much interest attached to the performances of the machines

* See Lanchester's description of his experiments with a ballasted flat plate, to which frequent references are made in his "Aerial Flight."

† A cambered wing with non-shifting centre of pressure can be produced by using an upturned trailing edge. See Eiffel's later researches. For reference to the Fales stable wing section, see "Aviation," p. 319.

‡ See "Technical Report," Vol. 1912-13, p. 73.

constructed on this principle, and much has been written about them,§ but lack of space prevents any discussion of the principles in the present place.

In bringing this very sketchy review of the subject to a conclusion, I am chiefly conscious of a vast field of omissions. A very natural doubt as to the value of the little I have said also casts a depression on my mind, but I reflect with some satisfaction that if any reader of this paper should be curious enough to pursue the more important references that I have given in footnotes, he will find such a mine of interesting information as should cause him readily to forgive the shortcomings of my own text.

§ The work of J. W. Dunne is referred to in "Aviation." Articles on negative wing tips and stability appeared in "FLIGHT," Vol. V, p. 34. The theory of the negative wing tip treated mathematically by the Bryan method formed the subject of an article by J. H. Hume Rothery in "FLIGHT," Vol. V, p. 64.

AIRCRAFT AND THE WAR.

THE Bucharest paper *Universal* recently published the following message from a Hungarian source:—

"Russian aeroplanes have destroyed the barracks at Czernowitz, killing a large number of Austrian Gendarmes. One bomb exploded on the railway station, blowing up a great store of ammunition and killing several persons."

A despatch in the *Neue Freie Presse* from a correspondent in Serbia states:—

"For several weeks our aviators have reported great transports moving westwards, and it is quite clear that the enemy will rather leave his country than give himself up."

The *Stampa* on the 16th received information from Verona to the effect that:—

"Several of the more seriously injured in the air raid died as the result of blood poisoning, apparently caused by poisonous bombs. In defiance of the laws of war and humanity, it says, bombs were dropped on hospitals flying the Red Cross and on historic churches, but fortunately they failed to explode."

Writing under date of November 17th, the *Morning Post* correspondent at Petrograd said:—

"A Russian aeroplane, doubtless one of the big Sikorsky pattern, recently in the neighbourhood of Dvinsk, had a successful fight with three German Albatrosses. The Russian maxims proved too much for the German attack, and one Albatros at least was seriously damaged and forced to make a very abrupt descent over the German lines."

A Reuter message from Rome on November 17th stated:—

"An Austrian aeroplane appeared over Belluno at 8 o'clock this morning and dropped five bombs, only one of which exploded. Three persons were slightly wounded. There was no material damage."

The *Morning Post* correspondent at Petrograd, writing on November 18th, said:—

"A Zeppelin flew over positions opposite Dvinsk and dropped a number of bombs. Many fell into the Germans' own trenches, and appear to have been the cause of the panic and fright of the defenders already noted. It is estimated that this Zeppelin dropped fifteen large bombs, all but five of which were quite useless, most of them falling into the waters of Lake Swenten. But the five took full effect in the German trenches."

The *Times* correspondent at Venice on November 18th reported:—

"Five Austrian airplanes raided Venice this afternoon, but there was no loss of life or material damage."

A Reuter message from Rome on November 18th, stated:—

"Enemy aeroplanes again appeared over Verona this morning and threw some bombs, slightly wounding a boy. No material damage was caused."

Mr. James Dunn, writing to the *Daily Mail* from Rotterdam on Saturday, stated:—

"The Germans are boasting of a new aeroplane which is now being manufactured on entirely original lines in Berlin. It can be used above sea or land, and may roughly be described as a combination of a Zeppelin and an aeroplane, but, instead of using gas, buoyancy is secured by chambers from which the air is excluded.

"The whole machine is made of a light metal, and a feature is its enormous propeller. A German engineer says that with this machine 'London will be at the mercy of the new bombs.'"

The *Telegraaf*, giving details on the 18th of the transference of German troops from the Russian to the Flemish front, said:—

"During these troop movements Allied airmen displayed great activity. On the 11th an aerial fight took place over Rollegem and Capelle between a German and Allied airman. The German aeroplane was piloted by one person, while the Allied machine was occupied by a pilot and an observer. A fierce fight ensued, and culminated in both machines suddenly falling."

A Central News message from Amsterdam on Monday stated:—

"A message from Budapest says that almost daily Russian airmen fly over the Bukhovina and Bessarabia, and aerial fights are not infrequent."

"Some days ago an Austro-Hungarian airship appeared over Novo Sielica to ascertain the Russian positions. Russian airmen attacked, and aimed twenty-five bombs on the airship, which, however, escaped unhurt."

The *Daily Mail* correspondent at Rotterdam, writing on Monday, stated:—

"German aeroplanes have been busy scouting during the last few days off the northern Dutch coast. Yesterday afternoon a water-plane landed on the island of Schiermonnikoog, the airmen landing under the impression that they were at Borkum, the German island at the mouth of the Ems. The aeroplane was taken in charge by the Dutch and the two pilots interned."

A Central News message from the Hague on the 23rd inst. stated:—

"Unconfirmed reports received here state that the Germans are transferring Landsturm from Northern France to Serbia. It is added that two trains with aeroplanes were sent to the Balkans."

The following extract from a letter published in the *Morning Post* from a sailor on a river gunboat, describing the fighting at Kub-al-Amara, gives an interesting glimpse of aerial activity in Mesopotamia:—

"Immediately after this a seaplane glided down into the river and the pilot came alongside us and told the captain he had a map to explain. They got out and came on board. The consultation between the two officers was brief. We soon knew what the seaplane's mission was to us. It was orders for us to go under the enemy's nose under cover of darkness and destroy an obstruction near the town, which was there to prevent us from going farther up the river."

Writing recently to the *Morning Post* from the British Headquarters, Mr. H. F. Prevost Battersby said:—

"Aeroplane tactics appear to be undergoing some modification. In the early months of the war the upper berth was as eagerly striven for as was the weather berth by the old line of battle ship. Now it is quite usual to see a pilot deliberately sacrifice that position, and, diving beneath an antagonist, rake his plane with fire as he swings across its bow. The mounting of the machine-gun in some of the French monoplanes, so high above the structure that the observer fires, standing, over the extreme tip of the propeller, may also influence the style of fighting; but the position is not, for several reasons, universally admired, and seems hardly to possess compensating advantages for its defects."

Another Zeppelin Destroyed.

INFORMATION was published in the *Ribe Stifts Tidende* on Saturday to the effect that one of Germany's latest Zeppelins—described as Z18—was blown up at a new shed near Tondern, Schleswig, on November 17th, between 8 and 9 a.m. The explosion occurred while soldiers were pumping gas into the envelope, and it is said to have been due to a marine engaged in making alterations to the roof of the shed dropping a burning cigar on to the airship. It is stated that the airship—a very large one—had only arrived the previous day, and had made one trip westward over the Isle of Sylt before it was destroyed. The shed had only just been completed, and a few alterations were being carried out, some platforms for anti-aircraft guns being taken from the roof and placed on the ground at the four corners of the shed. The explosion blew off the roof and killed or injured eleven men; the Zeppelin caught fire and was entirely destroyed. The *Morning Post* correspondent at Copenhagen states that the explosion was so severe that all buildings in the vicinity were razed.

According to Danish information the loss was being kept a profound secret, and no passports from Tondern were issued for three days. The German papers denied the loss of the airship, but travellers arriving in Denmark from Germany confirmed the report and that it was a new airship of the largest type.

Latest "Rehearsal" at Wilhelmshafen.

A SECOND rehearsal at Wilhelmshafen of an alarm of an attack by hostile aircraft on the 18th inst. gave no better results than that of a few weeks ago. According to information received in Copenhagen, on the signal—six rapid clangs on the church bells and the firing of six guns—being given, the public lost their heads and rushed into the streets, hopelessly blocking the thoroughfares and obstructing the military, &c.

The military Governor of Wilhelmshafen has consequently issued a scathing reproof in the local papers and the following instructions to the public, which must be strictly obeyed:—

Do not telephone to the police, who have more important work to do than answering silly questions.

Do not forget the signals of six bells and guns.

Do not stand about the streets gazing at the sky, where you will see nothing but stars or clouds.

On no account form crowds.

Immediately leave churches, cinemas, theatres, &c., and hasten home and hide yourselves in the cellars.

Shopkeepers and private persons must forthwith extinguish all lights, remembering that the punishment for non-compliance is long terms of imprisonment.

Drivers of tramcars must stop at once and stay where they are.

School teachers must immediately send the children home.

Members of the volunteer fire brigade must run to their previously arranged meeting place.

Always remember that no alarm is given in war time without serious reason.

Aeroplanes for Exploration Work.

SPEAKING at a meeting of the Swedish Anthropological and Geographical Society at Stockholm on the 19th, Dr. Erik Mjoebjerg outlined a scheme he had suggested for an expedition to explore the unknown regions of the island of New Guinea by means of aeroplanes.

He said it was intended that the expedition should take out a powerful Farman machine capable of carrying five persons and at least a thousand pounds of stores, and also a smaller aeroplane to search for likely landing places in the interior of the island. When these had been found the heavier machine would follow, and regular services would be established between the various stations and the headquarters on the coast.

Launching Aeroplanes from Moving Warships.

MESSAGES from Washington state that the experiments which have been carried out by the U.S. Navy authorities since 1912 have resulted in the perfection of a catapult device for launching aeroplanes from warships under way. It is stated that the device is in the form of a car propelled along a track. The aeroplane is mounted on the car, secured in place, and the motor started. The car is propelled along the track at a gradually increasing speed to about fifty miles an hour, when the car is brought to a standstill, and the aeroplane is shot into the air. Successful trials are said to have been made from the cruiser "North Carolina" with an aeroplane piloted by Lieut.-Commander H. C. Mustin.



"Life is a mirror—smile at it and it will smile back; frown at it and it will frown again."

The Aviator.

OH, I clamber up high to the vault of the sky,
Far above all the muck of the trenches,
Far above the quick ire of the Maxim-gun fire,
Far above all the reek and the stench.
There's a puff from below in the lines of the foe,
Where a gunner is seeking to harm me;
But I drop and I rise from his bombs in the skies,
And I still am the Eye of the Army!

For it's my job to learn every sally and turn
Of the enemy right when they make it.
I'm a sentry whose care is a post high in air,
And it isn't for me to forsake it.
So I duck, and I dip, and I dodge, and I skip
From the aeroplane shells that would mar me,
While the gunner, with zest, does his Sunday school best
To put out the Eye of the Army.

Now there isn't much chance for the ancient romance
In these days of mechanical slaughter,
When we shed human blood in a horrible flood
On the face of the land and the water;
But I am not bound by the soldiers' dull round,
For in war's mighty drama they star me,
And it's still a great game, full of glory and fame,
To the venturesome Eye of the Army!

Berton Braley, in *N. Y. Times*.

Antique Monoplanes.

"FOR SALE: 40 year old hens."—*Blackburn Telegraph*.

The restaurant we went to the other day must have answered this advertisement.

! ! !

At a Theatrical Lodgings.

SERVANT (*rushing in, all excitement*): "Oh! Mum! The Zeppelins have come!"

OLD LADY: "Well, tell 'em we've already let the rooms to the Brothers Egbert!"

! ! !

AUSTRIAN airmen have thrown bombs at Juliet's house. As no amateur was playing Juliet on the balcony at the time, the offence was without excuse.—*London Opinion*.

! ! !

Muzzling the Gas-bags.

A CONGRESSIONAL debate on what shall be appropriated for aeronautics is a scheme for keeping people from finding out what they are talking about.—*Aerial Age*.

! ! !

Up-to-Date.

THE AVIATOR (*who has just fallen into a river*): "Lemme go! I'm all right; I can swim."

THE GIRL: "I don't care. I'm going to save you. I want a medal."—*Chicago Herald*.

MODELS.

The U.S.A. National Competition.

SOME details have now been received regarding the September stage of this competition, which was for flying boats and hydro-aeroplanes. The three prizes fell to the Illinois Model Aero Club. Mr. Lindsay Hittle taking the first prize of \$50, Mr. Ellis C. Cook the second of \$25 and Mr. Ward Pease the third of \$10. The official record of the proceedings as given in *Flying* are as follows:—

"Mr. Hittle's model hydro-aeroplane, after rising unaided from the water, remained in the air for 116 secs., which more than doubles the previous world's record. Mr. Hittle's record is all the more remarkable because it was made with a single-propeller, tractor monoplane, a type of model which is not popular with model flyers because of its eccentric performances.

"In this duration-from-the-water contest, the achievements of both Messrs. Cook (100.6 secs.) and Pease (71.8 secs.) are remarkable in that they surpassed the previous world's record of 60 secs., which had been held by Mr. George A. Cavanagh, of the Aero Science Club of America.

"In several instances the contestants in Eastern Model Clubs flew their models under adverse conditions. In Concord, Mass., the models had to rise out of a river in a valley where atmospheric conditions were unfavourable. At Garden City, L.I., the contestants used an improvised tank, which was not long enough to accommodate slow-rising models, and some of them dashed against the end of the tank before actually getting under way. The pontoons of those models that succeeded in rising were sometimes cut to pieces by stones as they came down.

"But the series, as a whole, has been gratifying in its results, not the least among which has been the increase of interest in the art. A new club has been formed at Springfield, Mass., and inquiries received from other points indicate the very probable starting of other clubs. Toronto, where aeroplanes are being built for export and where aviators are being trained for foreign military service, will probably have a model club in the near future."

The summary of the performances of the Illinois team is as follows:—

		Best Flights (time in secs.).			Total. Average.	
Lindsay Hittle	...	116	82.4	70.6	269	89.6
Ellis C. Cook	...	100.6	98.4	57	256	85.3
Ward Pease	...	71.8	45	0	116.8	38.9
William Schweitzer	...	53.8	38.8	0	92.6	30.8
Total		244.6	
Club average		61.1	

The five next best club averages were: Pacific North-West, 29.09; Harlem (which had two machines wrecked), 13.6; Detroit, 12.8; Concord, 12.7; and Texas, 6.9.

The Stony Stratford and District Club.

Mr. Oswald Hamilton, the enthusiastic hon. secretary of the above club, has now joined up with the Royal Naval Division, and friends of the club who have been favoured with copies of the club's magazine will now realise the reason for its non-appearance. In the meantime Mr. H. Mennell is looking after the secretarial business, and all communications should be addressed to him at 41, Wolverton Road, Stony Stratford.

Paper Models as Educators.

The following interesting suggestion which has been sent in by Mr. Denis Croll we commend to our readers as an opportunity to do something to help on in a small way the cause of aviation:—

"Seeing the several articles which have appeared in the Model column recently regarding the making of paper models, it has occurred to me that at the present time when the general public is taking so much interest in the doings of our flying officers that it would be worth while for some enthusiasts, especially in places where aeroplanes are rarely seen, to make a few really good scale models for display in shop windows, or permission might be obtained to show them in the local museum. It would be necessary for the models to be well made and to scale, but to a careful worker, who has the drawings in *"FLIGHT,"* it should not be difficult to produce really good miniatures of B.E.s, Avros, Sopwiths, Farmans, Caudrons, &c. Sufficient details have also been given in *"FLIGHT"* from time to time for German machines also to be made, so that in time a really representative collection could be got together. Those who have seen the crowds who gather round any souvenirs or relics connected with the war wherever exhibited, will realise the immense enthusiasm which could be aroused in this way, and if some of the local model clubs were to take up the suggestion, I think it would work to their advantage. It also might be found possible to add interest to such a collection of models by building a paper Zeppelin."

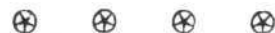
Steel Research and Aircraft.

It is announced that the Society of Motor Manufacturers and Traders have received intimation that the Government has agreed to make the grant asked for in connection with research work, regarding steel for aero engines, &c. Recent contributors to the S.M.M.T. fund include Sunbeam Motor Car Co., Ltd., £100; Hans Renold, Ltd., and the Maudslay Motor Co., Ltd., £50 each; the Rover Co., Ltd., Straker-Squire, Ltd., and Vauxhall Motors, Ltd., £25 each.

Too Much Petrol.

FOR keeping an excessive supply of petroleum, Caesar Schlesinger, of Loughton Hall, Loughton, was fined 20s. at Epping on the 19th inst. Evidence for the defence was to the effect that owing to a mistake made by the agent four times the quantity of petrol ordered had been sent. At once steps were taken for its return, but there was some delay. In the meantime, members of the Army Flying Corps went to Loughton Hall for hospitality, and, seeing his petrol, properly informed the authorities. The petrol was put into the shrubbery by the chauffeur for greater safety, and it had now been taken away.

There were thirty-six cases found, each containing four two-gallon tins. After hearing the defendant, the Bench said they would treat it as an ordinary case under the Act, and imposed a fine as stated above.



CORRESPONDENCE.

"Incidents" as they are Sensationalised.

[1914] As the passenger in the Mann biplane on the occasion of the accident on November 16th, I should like to deny a report that has been circulated to the effect that the machine got into an uncontrollable spin as soon as the chain broke. There was no perceptible shock or swerve, the chain flew straight out between the outside struts without touching anything, and the *vol plane* was quite devoid of any untoward incident. There was no "lopsided descent," no "thrilling downward course," no "trying circumstances," no "amazing escape," and no shock was sustained by Barrs or myself.

The accounts of the accident that have appeared in the daily Press are very misleading, and the various irresponsible aerodrome reports equally so.

I am convinced that but for the vertical current that drove us down almost at the moment of landing we should have reached the aerodrome without stretching a wire.

I am in no way connected with the Mann biplane or the Mann and Grimmer firm.

Northolt, November 22nd.

J. GEO. WOODLEY.



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Catalogue.

C.A.V. Public Service and Commercial Vehicle Lighting. C. A. Vandervell and Co., Acton Vale, London, W.



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